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VOL. XI, SEC. C, NO. 3 MAY, 1916

THE PHILIPPINE
JOURNAL OF SCIENCE

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BUREAU OF SCIENCE
MANILA

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1916

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THE PHILIPPINE
JOURNAL OF SCIENCE
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VOL. XI MAY, 1916 No. 3

THE AMBOINA PTERIDOPHYTA COLLECTED BY C. B. ROBINSON[1]

By C. R. W. K. VAN ALDERWERELT VAN ROSENBURGH
(*Buitenzorg, Java*)

The present paper consists of an enumeration of the *Pteridophyta* collected by the late Dr. C. B. Robinson in Amboina. The object of his field work there was to collect a series of specimens that should represent the forms actually described by Rumphius in the Herbarium Amboinense, so far as such material can definitely be connected with the Rumphian descriptions.

The definite or suggested identifications with the Rumphian species cited in this paper, are for the most part those made by Doctor Robinson during the prosecution of his field work in Amboina, July 15, 1913, the date of his arrival there, to December 5, 1913, the date of his untimely death. The entire collection was divided into two series: First, those that can definitely or fairly definitely be referred to species figured and described, or merely described, by Rumphius; and, second, those that were apparently unknown to Rumphius, or at least that were not described or figured by him. The former are to be distributed with special labels, *Plantae Rhumphianae Amboinenses*, with both the modern and the Rumphian names, the latter in a second series, *Reliquiae Robinsonianae.*

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[1] The present paper is the first publication to be issued on the results of the field work of the late Dr. C. B. Robinson in Amboina. Work on the remainder of the collection is being prosecuted as rapidly as possible and it is hoped that the whole can be prepared and issued at no distant date. The complete publication, as being prepared, will consist of a critical consideration of the Rumphian species so far as their status can be determined, worked out not from a study of literature alone like the interpretations of Burmann, Stickman, Linnaeus, Henschel, and, to a large degree, Hasskarl, but from a study of the literature supplemented by the fairly comprehensive Amboina collections now available through the active field work of Doctor Robinson.

In view of the special plan on which this proposed work is being prepared, it has been considered best to publish the present paper without delay and in its present form. [E. D. M.]

Appended to this paper is a complete list of the *Pteridophyta* described by Rumphius with their modern equivalents so far as these have definitely been determined.

HYMENOPHYLLACEAE

TRICHOMANES Linnaeus

TRICHOMANES CUPRESSOIDES Desv. Prodr. (1827) 330; v. A. v. R. Mal. Ferns 103.

AMBOINA, Heotoemoeri road, *Rel. Robins. 2388*, September 30, 1913; Hitoe messen, *Rel. Robins. 2478*, October 18, 1913, altitude about 300 meters.

Distrib.: Tropical Asia, Madagascar, Mascarenes, Comores, Seychelles.

TRICHOMANES DIFFUSUM Bl. Enum. Pl. Jav. (1828) 225; v. A. v. R. Mal. Ferns 90.

AMBOINA, Lateri, *Rel. Robins. 1940*, September 9, 1913, on trees, altitude 300 meters.

Distrib.: Java, Amboina.

TRICHOMANES HUMILE Forst. Prodr. (1786) 84; v. A. v. R. Mal. Ferns 94.

AMBOINA, Soja, *Rel. Robins. 1944, 1976*, August, 1913, on rocks, altitude 400 meters.

Distrib.: Malaya to Formosa, Polynesia, Australia, New Zealand.

TRICHOMANES JAVANICUM Bl. Enum. Pl. Jav. (1828) 224; v. A. v. R. Mal. Ferns. 799.

AMBOINA, Soja, *Rel. Robins. 1964*, August 31, 1913, on rocks, altitude about 375 meters.

Distrib.: Tropical Asia, Malaya, Polynesia, and Australia.

TRICHOMANES MEIFOLIUM Bory in Willd. Sp. Pl. 5 (1870) 509; v. A. v. R. Mal. Ferns 105.

Var. **ALATUM** v. A. v. R. l. c.

AMBOINA, Salahoetoe, *Rel. Robins. 1966*, November 27, 1913, terrestrial, altitude about 800 meters.

Distrib.: Malaya to Polynesia.

TRICHOMANES PALLIDUM Bl. Enum. Pl. Jav. (1828) 225; v. A. v. R. Mal. Ferns 93 (exclud. *Craspedoneuron album* v. d. B.).

AMBOINA, Salahoetoe, *Rel. Robins. 2589*, November 27, 1913, on trees, altitude about 750 meters.

Distrib.: Tropical Asia to Polynesia.

TRICHOMANES MINUTISSIMUM v. A. v. R. sp. nov. Plate V, fig. 1.

Hemiphlebium.—Rhizoma filiforme, decidue et obscure tomentosum. Stipites seriati, 0–2 mm longi, cum parte inferiore

costae decidue et obscure tomentosi. Frondes tenues, 4-5 mm longae, 1-4 mm latae, costatae, apice rotundatae vel rotundato-truncatae, venis pinnatim dispositis, in frondibus latissimis simulate flabellatis, in frondibus angustissimis erecto-patentibus, venulis spuriis paucis venis parallelibus; frondes steriles rotundato-oblongae, late ovatae vel cuneato-obovatae, integerrimae vel subintegerrimae, apice nunc integrae nunc emarginatae ad 2-lobatae, costa apicem versus sensim evanescente; frondes fertiles cuneato-obovate vel lineari-cuneatae, apice emarginatae ad 2-fidae, costa in sinu terminante. Sori ad costam terminales et solitarii, exserti, sessiles vel breviter pedunculati; indusium infundibuliforme, limbo dilatato, 2-valvi, valvis patentibus, semiorbicularibus; receptaculum exsertum, fragile.

AMBOINA, Soja, *Rel. Robins. 1944 p. p.*, August 2, 1913, on rhizomes of *Trichomanes humile* Forst.

TRICHOMANES PERVENULOSUM v. A. v. R. sp. nov. Plate V, fig. 2.

Gonocormus.—Rhizoma repens, filiforme, copiose ramosum, probabiliter caespitosum, ferrugineo-tomentosum, demum saepe glabrum. Stipites sparsi, filiformes, 0.5 ad 5 mm longi. Frondes tenuissimae, glabrae, simplices vel saepius 2-3-fidae, basi cuneatae ad anguste longe decurrentes, segmentis primariis erectis, erecto-patentibus vel patentibus, simplicibus vel furcatis vel raro irregulariter furcato-flabellatis; fronde simplices lineares, 5 ad 15 mm longae, 1.5 ad 2 mm latae, costatae, integerrimae, apice rotundate et interdum emarginatae; frondes divisae, 5 ad 20 mm longae, 3 ad 20 mm latae, segmentis ultimis brevissimis vel usque ad 15 mm longis, parte superiore frondium simplicium similibus; venae desunt; venulae spuriae adsunt, copiosae, breves, rectae vel leviter curvatae flexuosaeque, erecto-patentes vel costae marginive parallelae. Sori 1 vel plures, ad frondem simplicem vel ad segmenta frondium divisarum solitarii terminalesque; indusium infundibuliforme, immersum, limbo dilatato, patenti, vix 2-valvi; receptaculum non vel breviter exsertum.

AMBOINA, Hitoe lama, *Rel. Robins. 1947*, November 6, 1913, on limestone rocks, altitude about 100 meters.

This species resembles in aspect *Trichomanes Aswijkii* Rac., which, however, is larger and without spurious venules.

CYATHEACEAE

ALSOPHILA R. Brown

ALSOPHILA AMBOINENSIS v. A. v. R. sp. nov.

Stipites 50 cm superantes, in sicco ± fusci, gibbis brevibus, conicis, acutis aculeati, decidue ferrugineo-furfuracei. Frondes

3-pinnatifidae, rachide primaria in parte inferiore aculeolata, cum rachidibus secundariis supra pubescenti, juvenili subtus probabiliter furfuraceo-tomentosa et squamulosa; pili (partis ventralis) breves, patentes, incurvati, rufi vel castanei; tomentum (partis dorsalis) ochraceum; squamulae anguste subulatae vel filiformes, fuscae. Pinnae patentes, breviter petiolatae, acuminatae, rachide apicem versus anguste alata; pinnae maximae ovato-lanceolatae, usque ad ± 50 cm longae et 17.5 cm latae; pinnae inferiores valde remotae, reductae. Pinnulae firmiter herbaceae vel subcoriaceae, glabrae, usque ad 20–25 utrinque, breviter petiolulatae, obliquae vel inferiores patentes vel horizontales, profunde pinnatifidae, basi cuneato-truncatae, apice longe acuminato, subcaudato, grossius serrato-dentatae, costa supra fusco-puberula, cum costulis subtus squamulis minutis, ovatis, bullatis, acuminatis, pallidis (squamulis minus bullatis intermixtis) munita; pinnulae maximae ± 9 cm longae et 1.5 cm latae. Segmenta conferta vel approximata, patentia vel subhorizontalia, lineari-oblonga, recta vel subfalcata, usque ad 1 cm longa et 3 mm lata, parte inferiore crenata vel crenulata, apicem obtusiusculum vel acutiusculum versus serrato-dentata, venis usque ad 8-10 utrinque, furcatis, superioribus simplicibus. Sori subcostulares, venas inferiores occupantes, usque ad ± 6 utrinque, demum confluentes; capsulae pilis hyalinis, articulatis (capsulas non conspicue superantibus) intermixtae.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb. 464*, September 15, 1913, in forests, altitude 300 meters; Soja, *Robinson Pl. Rumph. Amb. 465*, August 4, 1913, in forests, altitude 400 meters.

Representing: PALMAFILIX NIGRA Rumph. Herb. Amb. VI, 65 (tab. XXVII?).

The esential parts of Doctor Robinson's notes regarding this tree fern are as follows: Trunk 4 to 5 m high, 8 to 10 cm in diameter, somewhat spiny. Fronds tripinate, about 2.5 m long, narrowly elliptic in outline; pinnae about 35 on each side of the rachis. The stipes run down on the trunk, which has a tendency to branch.

ALSOPHILA RUMPHIANA v. A. v. R. sp. nov.

Frondes 3-pinnatifidae, rachide in sicco subfusca, gibbis minutis, oblongis, apice atro-brunneis scabra, subtus decidue furfuraceo-tomentosa, supra hispida et paleacea; tomentum pallide ochraceum; pili longiusculi, pallide ochracei, longitudinaliter subappressi, setis articulatis, patentibus, basi rufis (sursum interdum applanatis, non-articulatis, pallide flavidis, breviter ciliolatis) intermixti; paleae longae, anguste subulato-lanceolatae, pallide flavidae, pilis brevibus, suberectis, acutis, rufis ciliolatae. Pinnae breviter petiolatae, ± 50 cm longae, acuminatae, rachide (cum costis) laevi vel sublaevi, subtus decidue pallide furfuracea, supra pilis proportione longis, subappressis copiose vestita. Pinnulae herbaceae, glabrae, confertae vel approximatae, sessiles, horizontales vel subhorizontales, profunde pinnati-partitae, acuminatae, acumine obtusiusculo, apicem versus serrato vel crenato, deorsum grosse dentato; pinnulae centrales maximae, ca. 11 cm longae et basi truncata ca. 2.5 cm latae. Segmenta approximata, subhorizontalia, lineari-oblonga, usque ad 1.25 cm longa et 3 mm lata, obtusa vel obtusiuscula, crenata, basi dilatata; crenae simplices, retusae vel 2-3-crenulatae, certe inferiores ciliatae, ciliis patentibus, articulatis, ad apicem venularum solitariis; segmenta infima non raro libera, horizontalia et basi non dilatata; segmenta fertilia supra ad locos receptaculorum non profunde sed distincte impressa; costulae et venae supra pilis setiformibus sparsis, acutis, pallide flavidis munitae; costulae subtus squamulosae, squamulis minutis, ovatis, bullatis, acuminatis, acumine graciliter fimbriato; venae usque ad 12-15 utrinque, subtus leviter prominentes, furcatae ad duplicato-furcatae, superiores simplices. Sori ad venas inferiores, usque ad 8 utrinque, subcostulares; capsulae pilis breviusculis (capsulas non vel vix superantibus), articulatis, fuscis intermixtae.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb. 463*, October 14, 1913, in light forest, altitude 175 meters.

Representing: PALMAFILIX ALBA Rumph. Herb. Amb. VI, 63.

Doctor Robinson's notes on this plant are as follows: Twelve meters high, trunk 14 cm in diameter, the basal part densely covered with purple-black fibrils, this fibrous portion about three-fifths of the whole diameter of the trunk at the base, but the fibers mostly absent above. Fronds about twenty-five, 3 m long, the stipe about 5.5 cm. wide at the base, up to 1 m to the first pinnae, the pinnae about fifteen on each side, alternate, the lower three to eight about equal in length and longer than those above.

POLYPODIACEAE

DRYOPTERIS Adanson

DRYOPTERIS DIDYMOSORA (Parish) C. Chr. Ind. Fil. (1906) 262; v. A. v. R. Mal. Ferns 225.

D. parasitica O. Ktze., conf. C. Chr. in Ark. för Bot. 9^{11}: 26, *fig. 4*.

Nephrodium didymosorum Parish ex Bedd. Ferns Brit. Ind. (1866) *t. 200*.

AMBOINA, *Rel. Robins. 1959*, July 23, 1913, riverside, town of Amboina, locally known as *paku bau busuk*.

Robinson's specimen agrees almost exactly with Beddome's plate mentioned above. The sori, however, are apparently smaller, and the contiguous pairs placed so closely, that each pair of sori seems to be a single sorus only. New to Amboina.

Distrib.: Northern India, southern China, and the Malay Peninsula (?).

DRYOPTERIS FEROX (Bl.) O. Ktze. Rev. Gen. Pl. 2 (1891) 812; v. A. v. R. Mal. Ferns 221.

Aspidium ferox Bl. Enum. Pl. Jav. (1828) 153.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb. 439*, July 23, 1913, river banks, altitude about 10 meters, "pinnae 25 to 40 on each side of the rachis."

Representing: FILIX AMBOINICA MAS (*sive* AGRESTIS) Rumph. Herb. Amboin. VI, 69.

Distrib.: Malaya.

DRYOPTERIS INTERMEDIA (Bl.) O. Ktze. Rev. Gen. Pl. 2 (1891) 813; v. A. v. R. Mal. Ferns 199;

Dryopteries rhodolepis C. Chr. Ind. Fil. (1906) 288 p. p.

Aspidium intermedium Bl. Enum. Pl. Jav. (1828) 161.

AMBOINA, Hitoe messen, *Rel. Robins. 1956*, altitude about 450 meters. Somewhat larger than usual, and the lowest pinnae broader, much produced on the lower side.

Distrib.: Malaya.

DRYOPTERIS PSEUDO-ARBUSCULA v. A. v. R. sp. nov.

Nephrodium.—Rhizoma breviter trunciforme, apice squamis longis, subulatis, integerrimis, pallide fuscis vestitum. Stipites conferti, infra pinnas reductas 2.5 ad 3.5 cm longi, breviter hispidi. Frondes lanceolatae, 20 ad 25 cm longae, ad mediam 5 ad 6 cm latae, acuminatae, rachide pilis longis, acutis, pallidis dense hispida. Pinnae herbaceae, utrinque breviter puberulae, ad costas venasque subtus hispidae; pinna terminalis triangularis, apice subcaudata et subintegerrima, basi profunde pinnatifida; pinnae laterales remotae, ca. 18 utrinque, horizontales vel patentes, lineares, obtusae, costulis (main veins) obliquis, superioribus simplicibus, ceteris pinnatis, venis 1-3 utrinque, venis infimis anastomosantibus; pinnae superiores adnatae, ceterae subpetiolulatae; pinnae maximae 3 cm longae, basi truncata vel subtruncata el paullo dilatata (sub-1-2-auriculata) usque ad 7 mm latae, margine costam versus usque ad ⅓ lobatae; pinnae ceterae minus incisae vel subintegerrimae; pinnae inferiores sensim vel abrupte reductae, infimae minute auriculiformes. Lobi obtusi, integerrimi vel parce repando-crenati. Sori ad venas mediales, majusculi; indusium persistens, copiose hispido-ciliatum.

AMBOINA, Batoe merah, *Rel. Robins. 1962*, August 24, 1913, terrestial in bed of a ravine, altitude about 20 meters; the rhizome horizontal, often exposed from 10 to 20 cm.

Differs from *Dryopteris arbuscula* O. Ktze. in having the pinnae blunter, hispid on the veins beneath, the veins less numerous, less copiously anastomosing, and the indusia ciliate.

CYCLOPELTIS J. Smith

CYCLOPELTIS PRESLIANA (J. Sm.) Berk. Introd. Crypt. Bot. (1857) 517; v. A. v. R. Mal. Ferns 164.

Lastraea presliana J. Sm. in Hook. Journ. Bot. 3 (1841) 412.

AMBOINA, Ayer putri, *Rel. Robins. 1960,* July 29, 1913, on coral rocks at low altitudes.
Distrib.: Burma, through Malaya and the Philippines to New Guinea.

ASPIDIUM Swartz

ASPIDIUM REPANDUM Willd. Sp. Pl. 5 (1810) 216; v. A. v. R. Mal. Ferns 236.

Aspidium pachyphyllum Ktze. in Bot. Zeit. (1848) 259; v. A. v. R. l. c. 252.

Aspidium persoriferum Copel. in Perk. Fragm. Fl. Philip. (1905) 177; v. A. v. R. l. c. 251.

Tectaria crenata Cav.; Copel. in Philip. Journ. Sci. 2 (1907) Bot. 414.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb. 447,* August 2, 1913, altitude about 250 meters.
Representing: LOCHITIS AMBOINICA RECTA MINOR (NIGRA) Rumph. Herb. Amboin. VI, 71.
Distrib.: Malaya and the Philippines to Polynesia.

STENOSEMIA Presl

STENOSEMIA AURITA (Sw.) Pr. Tent. Pterid. (1836) 237, *t. 10, f. 24;* v. A. v. R. Mal. Ferns 726.

Acrostichum auritum Sw. in Schrad. Journ. 1800² (1801) 12.

AMBOINA, Way Uri and Halong, *Robinson Pl. Rumph. Amb. 444,* September, 1913, altitude 25 to 50 meters.
Representing: FILIX FLORIDA Rumph. Herb. Amboin. VI, 78, tab. XXXV, fig. 1.
Distrib.: Malaya, Solomon Islands.

DIPTERIS Reinwardt

DIPTERIS CONJUGATA Reinw. Syll. Plant. Nov. 2 (1824) 3; v. A. v. R. Mal. Ferns 523.

AMBOINA, Salahoetoe, *Rel. Robins. 1974,* November 27, 1913, very common, altitude 200 to 800 meters.
Distrib.: Tropical Asia to Polynesia.

DIPTERIS LOBBIANA (Hook.) Moore, Ind. Fil. (1857) LXXX; v. A. v. R. Mal. Ferns 522.

Polypodium lobbianum Hook. Journ. Bot. 5 (1853) 309, *t. 11.*

AMBOINA, Salahoetoe, *Rel. Robins. 1970,* November 27, 1915, on rocks along a small stream, altitude about 750 meters.
Distrib.: Malaya.

NEPHROLEPIS Schott

NEPHROLEPIS HIRSUTULA (Forst.) Pr. Tent. Pterid. (1836) 79; v. A. v. R. Mal. Ferns 160.

Polypodium hirsutulum Forst. Prodr. (1786) 81.

Aspidium hirsutulum Sw.; Schk. Krypt. Gew. 1 (1804) *t. 33.*

AMBOINA, Binting, *Rel. Robinson 1957,* July 29, 1913, on grassy slopes at low altitudes.

Distrib.: Pantropical.

HUMATA Cavanilles

HUMATA SUBTILIS v. A. v. R. in Bull. Jard. Bot. Buitenz. 7 (1912) 18.

Humata perpusilla v. A. v. R. l. c. 17.

AMBOINA, Salahoetoe, *Rel. Robins. 1968,* November 27, 1913, on logs, altitude about 650 meters.

Humata perpusilla is a juvenile form of *H. subtilis;* consequently both forms may be found on the same rhizome.

Distrib.: New Guinea, Amboina, Taliabo.

HUMATA GAIMARDIANA (Gaudich.) J. Sm. in Hook. Journ. Bot. 1 (1842) 425.

Nephrodium gaimardianum Gaudich. Bot. Freyc. Voy. (1827) 335, *t. 12, f, 1.*

AMBOINA, Wakal, *Rel. Robins. 1939,* November 5, 1913, on *Sonneratia* trees along the seashore.

Distrib.: Burma to Malaya and Polynesia.

DAVALLIA Smith

DAVALLIA ELATA (Forst.) Spr. in Schrad. Journ. 1799^{2} (1799) 271; Hook. Sp. Fil. 1 (1846) *t. 55;* v. A. v. R. Mal. Ferns 302.

Davallia denticulata Mett. (var.) C. Chr. Ind. Fil. (1906) 209.

Trichomanes elatum Forst. Prodr. (1786) 85.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 449,* July 28, 1913, epiphytic at low altitudes.

Representing: DRYOPTERIS ARBOREA Rumph. Herb. Amboin. VI, 73, tab. XXXII, fig. 1.

Robinson's specimen differs from Hooker's plate in having the adnate basal portion of the indusium subsemiorbicular, the free apical portion triangular with rather straight edges, and the spurious veins less numerous and less distinct.

Distrib.: Burma to Malaya and Polynesia.

TAPEINIDIUM C. Christensen

TAPEINIDIUM AMBOYNENSE (Hook.) C. Chr. Ind. Fil. (1906) 631; v. A. v. R. Mal. Ferns 315.

Davallia amboinensis Hook. Sp. Fil. 1 (1846) 178, *t. LVI C.*

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb. 443,* September 9, 1913, in forests, altitude about 250 meters.

Representing: DRYOPTERIS SILVESTRIS TERRESTRIS Rumph. Herb. Amb. VI, 73 (?).

Distrib.: Moluccas, Samoa.

LINDSAYA Dryander

LINDSAYA CULTRATA (Willd.) Sw. Syn. Fil. (1806) 119; v. A. v. R. Mal. Ferns 269.

Adiantum cultratum Willd. Phytograph. (1794) 14, *t. 10, f. 2.*

AMBOINA, Hitoe messen, *Rel. Robins. 1951*, October 18, 1913, altitude about 350 meters; Hoetoemoeri road, *Rel. Robins. 1948*, September 30, 1913, on banks, altitude, about 200 meters; a small, young form.

Distrib.: Madasgascar, Réunion, tropical Asia to Queensland.

LINDSAYA DAVALLIOIDES Bl. Enum. Pl. Jav. (1828) 218; v. A. v. R. Mal. Ferns 274.

AMBOINA, Hitoe messen, *Rel. Robins. 1937*, October 18, 1913, altitude 350 meters.

ASPLENIUM Linnaeus

ASPLENIUM NIDUS L. Sp. Pl. (1763) 1079; v. A. v. R. Mal. Ferns 439.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 448*, July 28, 1913, epiphytic at low altitudes.

Representing: PHYLLITIS AMBOINICA ARBOREA Rumph. Herb. Amboin. VI, 82, t. XXXVII, fig. 1.

Distrib.: Paleotropical.

ASPLENIUM AMBOINENSE Willd. Sp. Pl. 5 (1810) 303; v. A. v. R. Mal. Ferns 441.

AMBOINA, Hitoe lama, *Rel. Robins. 1946*, October 11, 1913, on small trees, altitude about 150 meters.

Distrib.: Malaya, Polynesia.

ASPLENIUM BELANGERI (Bory) Kze. in Bot. Zeit. (1848) 176; v. A. v. R. Mal. Ferns 474.

Darea belangeri Bory in Belang. Voy. Bot. 2 (1833) 51.

Asplenium tenerum Forst. (var.) C. Chr. Ind. Fil. (1906) 134.

AMBOINA, Hatiwe, *Rel. Robins. 1942*, September 15, 1913, on rocks along streams, altitude about 250 meters.

Distrib.: British India across Malaya and the Philippines to Polynesia.

ASPLENIUM TENERUM Forst. Prodr. (1786) 80; v. A. v. R. Mal. Ferns 458.

AMBOINA, Soja, *Rel. Robins. 1931*, August 31, 1913, on rocks, altitude about 300 meters.

Distrib.: Seychelles, British India, across Ceylon and Malaya to the Philippines and Polynesia.

ASPLENIUM LASERPITIIFOLIUM Lam. Encycl. 2 (1786) 310; v. A. v. R. Mal. Ferns 472.

AMBOINA, Hoenoet, *Rel. Robins. 1938*, October 18, 1913, on trees, altitude about 200 meters.

Distrib.: Malaya, Polynesia, and tropical Australia.

ASPLENIUM sp.

AMBOINA, Hitoe lama, *Rel. Robins. 1963*, October 8, 1913, altitude 220 meters. A young and sterile specimen near *A. cuneatum* Lam., or a form of it.

ADIANTUM Linnaeus

ADIANTUM ROBINSONII v. A. v. R. sp. nov.

Eu-adiantum.—Rhizoma breve, squamulis anguste lineari-subulatis pallide rufo-fuscis vestitum. Stipites approximati, basin versus squamulosi et demum asperuli, ceterum (cum rachidibus) glabri, atro-brunnei, nitentes. Frondes ± 10 ad 15 cm longae, usque ad 12 cm latae, ramosae; rami laterales infra ramum terminalem 1 vel 2 utrinque. Foliola coriacea, supra leviter nitentia, subtus subopaca, approximata, breviter at graciliter petiolulata, dimidiato-oblonga, 1 ad 1.5 cm longa, usque ad 0.75 cm lata, margine superiore et exteriore serrulata (vel leviter 2-lobata et serrulata) et pellucido-striata, venis subflabellatis, in sinibus serraturarum terminantibus. Sori in quoque foliolo 1 vel 2, ad marginem superiorem positi, transverse oblongi vel lineari-oblongi, sat recti; capsulae ad et inter venulas ortae; indusium angustum, coriaceum, obscure fuscum.

AMBOINA, Amahoesoe, *Rel. Robins. 1941*, September 16, 1913, altitude 80 meters.

CHEILANTHES Swartz

CHEILANTHES TENUIFOLIA (Burm.) Sw. Syn. Fil. (1806) 129, 332; v. A. v. R. Mal. Ferns 339.

Trichomanes tenuifolium Burm. Fl. Ind. (1768) 237.

AMBOINA, Way Tommo, *Robinson Pl. Rumph. Amb. 442*, August 19, 1913, altitude about 80 meters.

Representing: DRYOPTERIS CAMPESTRIS Rumph. Herb. Amboin. VI, 74, t. XXXIV, fig. 2.

Distrib.: Tropical Asia, Australia, and Polynesia, to Tasmania and New Zealand.

PTERIS Linaeus

PTERIS ORIENTALIS v. A. v. R. in Bull. Dépt. Agr. Ind. Néerl. 18 (1908) 12; Mal. Ferns 355.

Var. **GLABRA** v. A. v. R. in Bull. Jard. Bot. Buitenz. 7 (1912) 26.

AMBOINA, Binting, *Rel. Robins. 1958*, July 29, 1913, roadside at low altitudes, locally known as *paku kawat*.

Large; pinnae remote; lower pinnae with the base obliquely cordate, i. e. the upper side of the base shorter and broader than the lower. Perhaps a derived form of *Pteris moluccana* Bl., with the pinnae unequally cuneate at the base.

VITTARIA ZOSTERIFOLIA Willd. Spec. Pl. 5 (1810) 406; v. A. v. R. Mal. Ferns 554.

AMBOINA, Hitoe lama, *Rel. Robins. 1950*, October 8, 1913, epiphytic, at an altitude of about 125 meters.

Distrib.: Mascarenes, Comores, Malaya, to Polynesia.

SCLEROGLOSSUM van Alderwereldt van Rosenburgh

SCLEROGLOSSUM PUSILLUM (Bl.) v. A. v. R. in Bull. Jard. Bot. Buitenz. 7 (1912) 37, *t. 5, fig. 1-2.*

Vittaria pusilla Bl. Enum. Pl. Jav. (1828) 199; v. A. v. R. Mal. Ferns 560.

AMBOINA, Salahoetoe, *Rel. Robins. 1965,* November 27, 1913, epiphytic, altitude about 950 meters.

Distrib.: Ceylon, Malacca, Java, Borneo, Philippines, New Guinea, Queensland.

ANTROPHYUM Kaulfuss

ANTROPHYUM CALLIFOLIUM Bl. Enum. Pl. Jav. (1828) 111; v. A. v. R. Mal. Ferns 535.

AMBOINA, Soja, *Rel. Robins. 1943,* August, 3, 1913, on rocks, altitude about 400 meters.

Distrib.: Malaya, Polynesia.

ANTROPHYUM PLANTAGINEUM (Cav.) Kaulf. Enum. Fil. (1824) 197.

Hemionitis plantaginea Cav. Descr. (1802) 260; v A. v. R. Mal. Ferns 533

AMBOINA, Ayer putri, *Rel. Robins. 1945,* July 28, 1913, on trees and coral limestone at low altitudes.

Distrib.: Northern India, Ceylon, Malaya, and Polynesia.

DRYMOGLOSSUM Presl

DRYMOGLOSSUM FALLAX v. A. v. R. sp. nov. Plate VI.

Rhizoma longe repens, gracile, firmum, ramosum, in sicco obscure fuscum vel nigrescens, squamis ovatis vel lanceolato-subulatis, subrufis, acuminatis, irregulariter denticulatis, basi peltatis ornatum. Stipites remoti, 2-seriati, supra basin articulati, frondium sterilium 2-3, frondium fertilium usque ad 12 mm longi. Frondes steriles coriaceae, pilis stellatis, pallidis, appressis, paucis munitae, late oblongae vel ovatae, integerrimae, apice obtusae vel rotundatae, basi late cuneatae, rotundato-truncatae vel subcordatae, ad stipitem abrupte et anguste cuneato-decurrentes; costa sursum sensim evanescens; areolae subhexagonae, obliquae, venulis liberis, excurrentibus parce munitae. Frondes fertiles lineares, semiteretes, 1.5 ad 4.5 cm longae, 2.5 ad 3 mm latae, subtus profunde et late 2-sulcatae, apice obtusiusculae, marginibus parallelis, basi anguste cuneatae et longe decurrentes. Sori lati, continui, in sulcis positi, costam subapproximati.

AMBOINA, Hitoe messen, *Rel. Robins. 9152,* October 14, 1913, epiphytic in light forests, altitude 175 meters, locally known as *paku tali.*

Very remarkable in having the sori flanked by rows of long-stalked peltate hairs, and the capsules of each sorus separated by a longitudinal series of densely crowded, simple or variously branched, pale paraphyses, so as to form two parallel series of capsules to a sorus. *Drymoglossum carnosum* J. Sm., reported from Amboina, differs in having the areolae provided with recurrent free veinlets, and the sori covered by peltate scales when young.

HYMENOLEPIS Kaulfuss

HYMENOLEPIS SPICATA (Linn. f.) Presl Epim. (1849) 159; v. A. v. R. Mal. Ferns 728.

Acrostichum spicatum Linn. f. Suppl. (1781) 444.

AMBOINA, Mahiya, *Rel. Robins. 1949*, October 3, 1913, epiphytic, altitude about 350 meters.

Distrib.: Madagascar, Mascarenes, Tropical Asia, Australia, and Polynesia.

POLYPODIUM Linnaeus

POLYPODIUM CONTIGUUM (Forst.) J. Sm. in Hook. Journ. Bot. **3** (1841) 394; v. A. v. R. Mal. Ferns 616.

Trichomanes contiguum Forst. Prodr. (1786) 841.
Davallia contigua Spr. in Schrad. Journ. **1789**^{2} (1789) 271.

Var. **MONOSORA** Copel. in Perk. Fragm. (1905) 179.

AMBOINA, Hitoe messen, *Rel. Robins. 1935*, October 18, 1913, on trees with *Polypodium decorum* Brack.

Distrib.: Java, the Philippines, and New Guinea.

POLYPODIUM DECORUM Brack. in Wilkes U. S. Expl. Exp. **16** (1854) 7, *t. 2, fig. 2;* v. A. v. R. Mal. Ferns 608.

AMBOINA, Hitoe messen, *Rel. Robins. 1936*, October 18, 1913, on trees, altitude about 400 meters.

A young specimen with the fronds shorter and narrower than usual.

Distrib.: Ceylon across Malaya to Polynesia.

POLYPODIUM MERRILLII Copel. in Perk. Fragm. Fl. Philip. (1905) 188; v. A. v. R. Mal. Ferns 579.

AMBOINA, Salahoetoe, *Rel. Robins. 9169*, November 27, 1913, on trees, altitude about 950 meters.

Distrib.: Philippines (Palawan only).

PLEOPELTIS Humbolt & Bonpland

PLEOPELTIS MUSIFOLIA (Bl.) Moore Ind. Fil. (1857) LXXVIII.

Polypodium musifolium Bl. Enum. Pl. Java (1828) 134; Fl. Jav. 2:171, *t. 79;* v. A. v. R. Mal. Ferns 654.

Forma *typica:* Fronds linear or ligulate, cordate or rounded at the base, sessile; main veins long, rather straight, reaching nearly to the margin, connected by transverse veins forming several rows of nearly regular, subquadrangular primary areolae.

AMBOINA, Ayer putri, *Rel. Robins. 1954*, July 28, 1913, on trees at low altitudes.

A young form intermediate between the type and the variety by its lanceolate fronds acute at the base, and its irregular lower venation.

Distrib.: Malaya.

Var. **SCHUMANNIANA** (Diels) Ros. in Nov. Guin. 8 (1912) Bot. 729.

Polypodium schumannianum Diels in Schum. & Laut., Fl. Deut. Schutzgeb. Süds. (1889) 139, *t. 3, C-D.*

Fronds smaller, varying from ovate-oblong or panduriform to lanceolate, sessile with a cordate base with overlapping lobes to stalked with a long-decurrent acute base; main veins forming a series of large, costal primary areolae; a second series of stout veins forms smaller areolae outside the costal ones, both including numerous finer ones resembling those between the second series and the margin. United with the type by intermediate forms.

AMBOINA, Lateri, *Rel. Robins. 1961,* August 25, 1913, epiphytic, altitude 175 meters, locally known as *paku karang.*

Distrib.: New Guinea and Amboina.

PLEOPELTIS PHYMATODES (Linn.) Moore Ind. Fil. (1857) LXXVIII.

Polypodium phymatodes Linn. Mant. 2 (1771) 306; v. A. v. R. Mal. Ferns 664.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 441,* July 28, 1913, epiphytic at low altitudes.

Representing: POLYPODIUM INDICUM MINUS (*sive* GLABRUM) Rumph. Herb. Amboin. VI, 80, t. XXXV, fig. 2.

Distrib.: Tropical Africa, Asia, Australia, Polynesia, and southern China.

PLEOPELTIS SINUOSA (Wall.) Bedd. Ferns Brit. Ind. (1865) *t. 8.*

Polypodium sinuosum Wall. List (1829) No. 2231; v. A. v. R. Mal. Ferns 623.

AMBOINA, Kati-Kati, *Robinson Pl. Rumph. Amb. 445,* October 17, 1913, on trees in mangrove swamps.

Representing: SCOLOPENDRIA MINOR Rumph. Herb. Amboin. VI, 84 (?).

Distrib.: Malaya, Melanesia.

PLEOPELTIS PUNCTATA (Linn.) Bedd. Ferns Brit. Ind. Suppl. (1876) 22.

Polypodium punctatum Sw. in Schrad. Journ. 1800² (1800) 21; v. A. v. R. Mal. Ferns 653.

Acrostichum punctatum Linn. Sp. Pl. ed. 2 (1763) 1524.

AMBOINA, Hoenoet, *Rel. Robins. 1955,* October 18, 1913, on trees, altitude about 200 meters.

Distrib.: Tropical Africa, Asia, Australia, and Polynesia.

PLEOPELTIS IMBRICATA (Karst.) v. A. v. R. in Bull. Dépt. Agr. Ind. Néerl. 17 (1909) 3.

Polypodium imbricatum Karst. in Ann. Jard. Bot. Buitenz. 12 (1895) 168 *tab. 15, fig. 29, 30, tab. 16, fig. 49, tab. 19;* v. A. v. R. Mal. Ferns 624.

Polypodium mirabile C. Chr. Ind. Fil. (1906) 545.

AMBOINA, Salahoetoe, *Rel. Robins. 1953,* November 27, 1913, on trees, altitude about 350 meters.

Known only from Amboina.

CYCLOPHORUS Desvaux

CYCLOPHORUS BEDDOMEANUS (Gies.) C. Chr. Ind. Fil. (1906) 198; v. A. v. R. Mal. Ferns 695.

Niphobolus beddomeanus Gies. Farng. Niph. (1901) 101.

AMBOINA, Hitoe lama, *Rel. Robins. 1979*, October 8, 1913, on limestone rocks, altitude about 150 meters.

Distrib.: Northern India and southern China to New Guinea.

CYCLOPHORUS ADNASCENS (Sw.) Desv. in Berl. Mag. 5 (1811) 300; v. A. v. R. Mal. Ferns 681.

Polypodium adnascens Sw. Syn. Fil. (1806) 25, 222, *tab. 2, fig. 2.*

AMBOINA, Binting, *Rel. Robins. 1932*, August 28, 1913, on trees at low altitudes.

Distrib.: Tropical Asia to Polynesia.

LOXOGRAMME Presl

LOXOGRAMME INVOLUTA (Don) Presl Tent. Pterid. (1836) 215; v. A. v. R. Mal. Ferns 537.

Grammitis involuta Don Prodr. Fl. Nepal. (1825) 14.

Polypodium scolopendrium C. Chr. Ind. Fil. (1906) 562.

AMBOINA, Soja, *Rel. Robins. 1930*, August 30, 1913, on rocks, altitude 300 meters.

Distrib.: China, tropical Asia, and Melanesia.

DRYNARIA J. Smith

DRYNARIA SPARSISORA (Desv.) Moore Ind. Fil. (1862) 348; v. A. v. R. Mal. Ferns 699.

Polypodium sparsisorum Desv. in Berl. Mag. 5 (1811) 315.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 450*, July 28, 1913, epiphytic at low altitudes.

Representing: POLYPODIUM INDICUM MAJUS (PILOSUM), Rumph. Herb. Amboin. VI, 78, t. XXXVI.

Distrib.: Ceylon to the Philippines, Polynesia, and Queensland.

MATONIACEAE

MATONIA R. Brown

MATONIA FOXWORTHYI Copel. in Philip. Journ. Sci. 3 (1908) Bot. 342, *t. 2.*

AMBOINA, Salahoetoe, *Rel. Robins. 1982*, November 27, 1913, common in places, altitude 300 to 800 meters. New to Ambonia.

Distrib.: Borneo.

GLEICHENIACEAE

GLEICHENIA Smith

GLEICHENIA MICROPHYLLA R. Br. Prodr. Flor. Nov. Holl. (1810) 161.

Gleichenia circinata auctt. plur. (not Sw.) C. Chr. Ind. Fil. (1906) 320; v. A. v. R. Mal. Ferns 56.

CYCLOPHORUS Desvaux

CYCLOPHORUS BEDDOMEANUS (Gies.) C. Chr. Ind. Fil. (1906) 198; v. A. v. R. Mal. Ferns 695.

Niphobolus beddomeanus Gies. Farng. Niph. (1901) 101.

AMBOINA, Hitoe lama, *Rel. Robins. 1979,* October 8, 1913, on limestone rocks, altitude about 150 meters.

Distrib.: Northern India and southern China to New Guinea.

CYCLOPHORUS ADNASCENS (Sw.) Desv. in Berl. Mag. 5 (1811) 300; v. A. v. R. Mal. Ferns 681.

Polypodium adnascens Sw. Syn. Fil. (1806) 25, 222, *tab. 2, fig. 2.*

AMBOINA, Binting, *Rel. Robins. 1932,* August 28, 1913, on trees at low altitudes.

Distrib.: Tropical Asia to Polynesia.

LOXOGRAMME Presl

LOXOGRAMME INVOLUTA (Don) Presl Tent. Pterid. (1836) 215; v. A. v. R. Mal. Ferns 537.

Grammitis involuta Don Prodr. Fl. Nepal. (1825) 14.

Polypodium scolopendrium C. Chr. Ind. Fil. (1906) 562.

AMBOINA, Soja, *Rel. Robins. 1930,* August 30, 1913, on rocks, altitude 300 meters.

Distrib.: China, tropical Asia, and Melanesia.

DRYNARIA J. Smith

DRYNARIA SPARSISORA (Desv.) Moore Ind. Fil. (1862) 348; v. A. v. R. Mal. Ferns 699.

Polypodium sparsisorum Desv. in Berl. Mag. 5 (1811) 315.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 450,* July 28, 1913, epiphytic at low altitudes.

Representing: POLYPODIUM INDICUM MAJUS (PILOSUM), Rumph. Herb. Amboin. VI, 78, t. XXXVI.

Distrib.: Ceylon to the Philippines, Polynesia, and Queensland.

MATONIACEAE

MATONIA R. Brown

MATONIA FOXWORTHYI Copel. in Philip. Journ. Sci. 3 (1908) Bot. 342, *t. 2.*

AMBOINA, Salahoetoe, *Rel. Robins. 1982,* November 27, 1913, common in places, altitude 300 to 800 meters. New to Ambonia.

Distrib.: Borneo.

GLEICHENIACEAE

GLEICHENIA Smith

GLEICHENIA MICROPHYLLA R. Br. Prodr. Flor. Nov. Holl. (1810) 161.

Gleichenia circinata auctt. plur. (not Sw.) C. Chr. Ind. Fil. (1906) 320; v. A. v. R. Mal. Ferns 56.

Var. **SEMIVESTITA** (Lab.) comb. nov.

Gleichenia semivestita Lab. Sert. Austr. Cal. (1824) 8, *tab. 11.*

AMBOINA, Salahoetoe, *Rel. Robins. 1980*, November 27, 1913, in open places, altitude about 850 meters, growing with *Gleichenia laevigata* Hook.

Distrib.: Malaya, Australia, Tasmania, New Caledonia, New Zealand.

GLEICHENIA LAEVIGATA (Willd.) Hook. Sp. Fil. 1 (1844) 10; v. A. v. R. Mal. Ferns 59.

Mertensia laevigata Willd. Sp. Pl. 5 (1810) 75.

AMBOINA, Salahoetoe, *Rel. Robins. 1978*, November 27, 1913, altitude about 850 meters.

Distrib.: Malaya.

GLEICHENIA AMBOINENSIS v. A. v. R. in Bull. Dépt. Agr. Néerl. Ind. 18 (1908) 3; Mal. Ferns 62.

AMBOINA, Salahoetoe, *Rel. Robins. 1977*, November 27, 1913, in open places, altitude about 925 meters.

This may be a more compound form of *Gleichenia hirta* Bl., but it is not identical with a duplicate of *Elmer 10909* from Mount Apo, Mindanao, in the Buitenzorg Herbarium.

Distrib.: Amboina and Buru.

GLEICHENIA LINEARIS (Burm.) Clarke in Trans. Linn. Soc. Bot. 1 (1880) 428; v. A. v. R. Mal. Ferns 59.

Polypodium lineare Burm. Fl. Ind. (1768) 235, *t. 17, fig. 2.*

Var. **FERRUGINEA** (Bl.) comb. nov.

Gleichenia ferruginea Bl. Enum. Pl. Jav. (1828) 249, affin.

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb. 446*, on rocks at low altitudes, July 18, 1913, locally known as *paku kawa.*

Representing: FELIX CALAMARIA Rumph. Herb. Amboin. VI, 85, tab. XXXVIII.

Distrib.: The type paleotropical, the variety scattered here and there.

SCHIZAEACEAE

SCHIZAEA Smith

SCHIZAEA DICHOTOMA (L.) Sm. in Mém. Acad. Turin 5 (1793) 422, *tab. 9, fig. 9;* v. A. v. R. Mal. Ferns 116.

Acrostichum dichotomun L. Sp. Pl. (1753) 1068.

AMBOINA, Salahoetoe, *Robinson Pl. Rumph. Amb. 460*, November 27, 1913, altitude about 200 meters.

Representing: EQUISETUM AMBOINICUM SILVESTRE Rumph. Herb. Amboin. VI, 92.

Distrib.: Madagascar, Mascarenes, tropical Asia, Australia, and Polynesia.

SCHIZAEA MALACCANA Baker Syn. Fil. (1868) 428; v. A. v. R. Mal. Ferns 116.

AMBOINA, Salahoetoe, *Rel. Robins. 1972*, November 27, 1913, altitude about 600 meters.

Distrib.: Burma, Malaya, Philippines.

LYGODIUM Swartz

LYGODIUM CIRCINATUM (Burm.) Sw. Syn. Fil. (1806) 153; v. A. v. R. Mal. Ferns 111.

Ophioglossum circinnatum Burm. Fl. Ind. (1768) 228.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb. 451*, August 13, 1913, on limestone formation, altitude 30 meters; Binting, *Robinson Pl. Rumph. Amb. 542*, on limestone formation, altitude 5 meters; locally known as *paku kawa*.

Representing: ADIANTHUM VOLUBILE POLYPOIDES (*sive* MAJUS) Rumph. Herb. Amboin. VI, 75, tab. XXXIII, and A. V. MEDIUM Rumph. l. c. 75.

Distrib.: Tropical Asia to Queensland.

LYGODIUM SCANDENS (Linn.) Sw. in Schrad. Journ. 1800[2] (1801) 106; v. A. v. R. Mal. Ferns 111.

Ophioglossum scandens Linn. Sp. Pl. ed. 2 (1763) 1063.

AMBOINA, Soja road, *Robinson Pl. Rumph. Amb. 453*, August 20, 1913, in thickets, altitude about 70 meters; near the town of Amboina, *Robinson Pl. Rumph. Amb. 454*, October 27, 1913, in light woods, altitude about 30 meters; locally known as *paku kawa*.

Representing: ADIANTHUM VOLUBILE MINUS Rumph. Herb. Amboin. VI, 76 tab. XXXII, fis. 2–3 (No. 453), and A. V. MINUS ALTERUM Rumph. l. c. 76 (No. 454).

Distrib.: Tropical Africa, Asia, Australia, and Polynesia.

LYGODIUM FLEXUOSUM (Linn.) Sw. in Schrad. Journ. 1800[2] (1801) 106, p. p.; v. A. v. R. Mal. Ferns 114.

Ophioglossum flexuosum Linn. Sp. Pl. ed. 2 (1763) 1063.

AMBOINA, hills behind the town of Amboina, *Rel. Robins. 1975*, October 27, 1913, in light woods, altitude about 30 meters.

Distrib.: Southern China, Malaya, and Queensland.

LYGODIUM DIMORPHUM Copel. in Philip. Journ. Sci. 6 (1911) Bot. 67 (July 2).

Lygodium novo-guinense Ros. in Fedde Rep. 9 (1911) 427 (August 15).

AMBOINA, Batoe merah, *Rel. Robins. 1981*, August 24, 1913, in ravines, altitude about 20 meters; locally known as *paku kawa*.

Mr. Merrill thought that this specimen was a more compound form of *L. semihastatum* Desv. In my opinion it is absolutely identical with Copland King's No. 134 from New Guinea, on which Copeland based his diagnosis of *Lygodium dimorphum*. Of this number we also possess a duplicate, and we have a specimen, from Skore (New Guinea, leg. Treub), bearing on the very same rachis: *a*, sterile pinnae like those of *L. dimorphum; b*, fertile pinnae like those of *L. dimorphum* and of *L. semihastatum*, but the latter only sparingly spiciferous; *c*, fertile pinnae more or less resembling those of *L. trifurcatum* Bak., as intermediates between those mentioned under *b*. It may be possible, that *L. dimorphum* is a strongly developed form of *L. semihastatum* and that Treub's plant unites both extremes as well as the intermediate; or the first two are not identical and *L. dimorphum* shows, when in a juvenile state, forms resembling *L. semihastatum* and *L. trifurcatum*. The true Philippine *L. semihastatum* apparently never reaches the strong development of the Papuan *L. dimorphum*, and the sterile pinnae of the former are described as palmate or 2-partito-palmate while those of the latter are once or twice forked.

Distrib.: New Guinea.

MARATTIACEAE

MARATTIA Swartz

MARATTIA FRAXINEA Sm. Pl. Ic. 2 (1790) *tab. 48;* v. A. v. R. Mal. Ferns 765.

AMBOINA, Soja, *Rel. Robins. 1971,* August 31, 1913, along streams in forests, altitude about 400 meters.

Perhaps identical with *M. pellucida* Presl.

Distrib.: Tropical Africa, Asia, and Australia.

OPHIOGLOSSACEAE

OPHIOGLOSSUM Linnaeus

OPHIOGLOSSUM PENDULUM Linn. Sp. Pl. ed. 2 (1763) 1518; v. A. v. R. Mal. Ferns 777.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb. 440,* August 2, 1913, in forests, altitude 400 meters.

Represnting: SCOLOPENDRIA MAJOR Rumph. Herb. Amboin. VI, 84, tab. XXXVII, fig. 3.

Distrib.: Tropical Asia, Australia, and Polynesia.

HELMINTHOCTACHYS Kaulfuss

HELMINTHOSTACHYS ZEYLANICA (Linn.) Hook. Gen. Fil. (1840) *t. 47.*

Osmunda zeylanica Linn. Sp. Pl. (1753) 1063.

AMBOINA, Kati Kati, *Robinson Pl. Rumph. Amb. 455,* October 28, 1913, altitude about 70 meters.

Representing: OPHIOGLOSSUM LACINIATUM Rumph. Herb. Amboin. VI, 153, tab. LXVIII, fig. 3.

Distrib.: Tropical Asia to tropical Australia and New Caledonia.

LYCOPODIACEAE

LYCOPODIUM Linnaeus

LYCOPODIUM CERNUUM Linn. Sp. Pl. (1753) 1566. v. A. v. R. Mal. Fern All. 47.

AMBOINA, Batoe merah and Soja road, *Robinson Pl. Rumph. Amb. 457,* July, 1913, altitude sea level to 250 meters, locally known as *daun rai rai.* The spikes are partly cernuous, partly erect.

Representing: CINGULUM TERRAE Rumph. Herb. Amboin. VI, 87, tab, XL, fig. 1.

Distrib.: Tropical and extra-tropical.

LYCOPODIUM PHLEGMARIA Linn. Sp. Pl. (1753) 1564; v. A. v. R. Mal. Fern All. 44.

Var. **LONGIFOLIUM** Spring, Monog. Lycop. 1 (1842) 65; v. A. v. R. l. c. 45.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb. 456,* August 13, 1913, on trees at low altitudes.

Representing: EQUISETUM AMBOINICUM ARBOREUM SQUAMATUM (*sive* FOLIATUM) Rumph. Herb. Amboin. VI, 91, tab. XLI, fig. 1.

Distrib.: Malaya.

LYCOPODIUM CARINATUM Desv. in Lam. Encycl. Suppl. 3 (1813) 555; v. A. v. R. Mal. Fern All. 36.

ABOINA, Amahoesoe, *Rel. Robins. 1973,* August 30, 1913, on trees at low altitudes, locally known as *bunga ranti.*

In habit this specimen resembles very much *Lycopodium laxum* Presl (non Spring), but the leaves are longer and not rigid.

Distrib.: Tropical Asia to Polynesia.

SELAGINELLACEAE

SELAGINELLA Linnaeus

SELAGINELLA ROBINSONII v. A. v. R. sp. nov.

Heterophyllum, Monostelicae, Intertextae.—S. brevipinnae v. A. v. R. affinis. Caules decumbentes, repentes, dichotomi vel subpinnati, probabiliter caespitosi, graciles, usque ad 0.5 mm crassi, straminei, in sicco irregulariter sulcati, foliis lateralibus inclusis 3.5 ad 4 mm lati; caules secundarii pinnati; pinnae remotae, obliquae, simplices, furcatae vel subpinnatae; ramuli ultimi usque ad ± 6 mm longi, 1.5 ad 2.25 mm lati. Folia heteromorpha; folia lateralia patentia remotaque; lateralia caulina late ovata, 1.75 ad 2.25 mm longa, usque ad 1.5 mm lata, valde inaequilatera, obtusa vel obtusiuscula, supra minute (sed sat copiose) papilloso-puberula, semifacie superiore apicem versus obsolete serrulata, ceterum serrulata et basin late rotundato-cordatam versus sensim ciliata, semifacie inferiore subintegerrima vel obsolete serrulata, ad basin anguste rotundato-cordatam saepe parce ciliolato-serrulata, costa in $\frac{2}{3}$ supra basin evanescente; lateralia ramulorum ultimorum usque ad 1.5 mm longa, minus inaequilatera, magis remote serrulata et ciliata, basi superiore rotundato-cuneata, basi inferiore rotundata; folia intermedia erecta; intermedia caulina remota, ovata usque ad 1 mm longa, longe acuminata ad cuspidata, subcarinata, semifacie exteriore minute serrulata, basi producta et rotundato-subcordata, semifacie interiore ciliata, basi rotundata vel rotundato-cuneata; intermedia ramulorum ultimorum minora, contigua. Spicae solitariae vel 2-nae, 4 ad 6 mm longae, 2 ad 2.5 mm latae; sporophylla lateralia patentia, subremota, lanceolata, breviter subapiculato-acuminata, supra glabra vel breviter puberula, carinata, margine superiore carinaque remote ciliata; sporophylla intermedia erecta, imbricata, ovata, longe acuminata, proportione longi-ciliata; sporae . . . . (microsporae juveniles flavidae vel aurantiacae, minute verruculosae).

AMBOINA, Salahoetoe, *Rel. Robins. 1987*, November 27, 1913, terrestrial, altitude 150 to 250 meters.

SELAGINELLA POUZOLZIANA (Gaudich.) Spring Monogr. Lycop. 2 (1842) 142; v. A. v. R. Mal. Fern All. 216.

Lycopodium pouzolziana Gaudich. in Freyc. Voy. Bot. (1827) 287.

According to Spring's diagnosis this species is said to have the axillary leaves obovate, narrowed at the base, and the lateral leaves entire.

AMBOINA, Kati-Kati, *Rel. Robins. 1984*, October 17, 1913, along small streams, altitude about 70 meters.

Forma *typica:* Lower axillary leaves broadly cordate or ovate, broadest at or near the base; lateral leaves often, if not invariably, very minutely serrulate-denticulate toward the apex; macrospores verruculose, whitish or pale-brown when young, gray-brown or black-brown when mature; microspores whitish or yellowish, provided with crowded, bacilliform or stipitate-capitate projections.

Distrib.: Nicobar Islands to the Moluccas, Formosa, and southern China.

SELAGINELLA CUPRESSINA (Willd.) Spring Monogr. Lycop. 2 (1842) 153 p. p.; v. A. v. R. Mal. Fern All. 140.

Lycopodium cupressinum Willd. Sp. Pl. 5 (1810) 42.

AMBOINA, near the town of Amboina, *Rel. Robins. 1983*, July 26, 1913, on shaded banks, locally known as *rutu rutu.*

Largest lateral leaves 2.5 mm or more long; intermedial leaves, at least those of the principal rachises, finely serrulate. *Selaginella leytensis* Hieron. is near this, but differs in having the branching less compound and looser, the rachises narrower, and the largest lateral leaves at most 2.5 mm long.

Distrib.: Borneo, Sumbawa, the Philippines, and New Guinea.

SELAGINELLA BELANGERI (Bory) Spring Monogr. Lycop. 2 (1842) 242; v. A. v. R. Mal. Fern All. 172.

Lycopodium belangeri Bory Voy. (1804) 16, *tab. 1, fig. 2.*

AMBOINA, Batoe Gadjah, *Rel. Robins. 1986*, August 5, 1913; near the town of Amboina, *Rel. Robins. 1985*, July 30, 1913.

Distrib.; British India across Malaya to Papua and northern Australia.

SELAGINELLA D'URVILLEI (Bory) A. Br. in Verh. Zool. Bot. Ges. (1869) 585; v. A. v. R. Mal. Fern All. 225.

Lycopodium d'Urvillei Bory Voy. (1804) 245, p. p.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb. 459*, September 4, 1913, in light woods at low altitudes.

Representing: MUSCUS FRUTICESCENS MAS Rumph. Herb. Amboin. VI, 86, tab. XXXIX, fig. 2 (?).

Distrib.: Amboina to Polynesia.

SELAGINELLA PLANA (Desv.) Hieron. in Engl. & Prantl. Nat. Pflanzenfam. 1 ^{4} (1900) 703; v. A. v. R. Mal. Fern All. 215.

Lycopodium planum Desv. in Lam. Encycl. Suppl. 3 (1813) 158.

AMBOINA, Gelala, *Robinson Pl. Rumph. Amb. 458*, July 16, 1913, on banks at low altitudes, locally known as *daun rutu rutu perampuan.*

Representing: MUSCUS FRUTICESCENS FOEMINA Rumph. Herb. Amboin. VI, 86, tab. XXXIX, fig 1.

Distrib.: Malaya to British India.

PSILOTACEAE

PSILOTUM Swartz

PSILOTUM TRIQUETRUM Sw. Syn. Fil. (1806) 117; v. A. v. R. Mal. Fern All. 24.

AMBOINA, Batoe Gadjah, *Robinson Pl. Rumph. Amb.* 461, August, 1913; Amahoesoe, Robinson *Pl. Rumph. Amb. 462,* September 16, 1913, on trees, altitude sea level to 150 meters.

Representing: EQUISETUM AMBOINICUM SECUNDUM Rumph. Herb. Amboin. VI, 92.

Distrib.: Tropical and extra-tropical.

LIST OF PTERIDOPHYTA DESCRIBED BY RUMPHUS IN THE HERBARIUM AMBOINENSE

In the following list those species included in brackets do not occur in Doctor Robinson's collection:

Adianthum volubile polypoides (majus), 75, tab. XXXIII=*Lygodium circinatum* Sw.

Adianthum volubile medium, 75=*Lygodium circinatum* Sw.

Adianthum volubile minus, 76, tab. XXXII, fig. 2, 3=*Lygodium scandens* Sw.

Adianthum volubile minus alterum, 76=*Lygodium scandens* Sw.

Capillus veneris Amboinicus, 77, tab. XXXIV, fig. 1=[*Adiantum* sp.].

Cingulum terrae, 87, tab. XL, fig. 1=*Lycopodium cernuum* L.

Dryopteris triplex arborea, 73, tab. XXXII, fig. 1=*Davallia elata* Spr.

Dryopteris triplex campestris, 74, tab. XXXIV, fig. 2=*Cheilanthes tenuifolia* Sw.

Dryopteris triplex sylvestris terrestris, 73=*Tapeindium amboynense* C. Chr. (?)

Dryoptris triplex sylvestris petraea, 74=[*Adiantum* or *Lindsaya*?].

Equisetum amboinicum arboreum squamatum (foliatum), 91, tab. XLI, fig. 1=*Lycopodium phlegmaria* L. var *longifolium* (?).

Equisetum amboinicum minor, 92=[*Lycopodium nummularifolium* Bl.?].

Equisetum amboinicum secundum, 92=*Psilotum triquetrum* Sw.

Equisetum amboinicum silvestre=*Schizaea dichotoma* Sw.

Filix amboinica mas (agrestis), 69=*Dryopteris ferox* O. Ktze.

Filix amboinica urens, 69=?

Filix aquatica, 65, tab. XXVIII=[*Angiopteris amboinensis* de Vr.?].

Filix calamaria, 85, tab. XXXVIII=*Gleichenia linearis* Clarke (*typica* or var. *ferruginea* aff.?).

Filix canarina, 64=?

Filix esculenta (femina), 67, tab. XXIX=[*Diplazium esculentum* Spr.].

Filix florida, 78, tab. XXXV, fig. 1=*Stenosemia aurita* Pr.

Filix lanuginosa, 69=[*Cibotium baranetz* J. Sm. or *Dicksonia sorbifolia* Sm.].

Lonchitis amara, 72=?

Lonchitis amboinica recta major rubra, 70, tab. XXX, fig. 1=[*Blechnum orientale* L.?].

Lonchitis amboinica recta major alba, 70 tab. XXX, fig. 2=[*Polypodium pallens* Bl.?].

Lonchitis amboinica recta minor nigra, 71=*Aspidium repandum* Willd.

Lonchitis amboinica recta minor alba, 71=?

Lonchitis mucosa, 72=?

Lonchitis pilosa, 72=?

Lonchitis saguaria, 72=?

Lonchitis volubilis, 71, tab. XXXI=[*Stenochlaena sp.*].

Millefolium aquaticum, 176, tab. LXXIV, tab. 1=[*Ceratopteris thalictroides* Brongn.].

Muscus fruticescens foemina, 86, tab. XXXIX, fig.. 1=*Selaginella plana* Hieron.

Muscus fruticescens mas, 86, tab. XXXIX, fig. 2=*Selaginella d'Urvillei* A. Br. (?).

Ophioglossum indicum simplex, 152, tab. LXVIII, fig. 2=[*Ophioglossum pedunculosum* Desv.].

Ophioglossum laciniatum, 153, tab. LXVIII, fig. 3=*Helminthostachys zeylanica* Hook.

Palmafilix alba, 63=*Alsophila rumphiana* v. A. v. R. (?).

Palmafilix nigra, 63, tab. XXVII (?)=*Alsophila amboinensis* v. A. v. R. (?).

Palmafilix postium, 63=?

Phyllitis amboinica arborea, 82, tab. XXXVII, fig. 1=*Asplenium nidus* L.

Phyllitis amboinica terrestris, 82, tab. XXXVII, fig. 2=?

Phyllitis polycipes, 76=?

Polypodium indicum majus (pilosum), 78, tab. XXXVI=*Drynaria sparsisora* Moore.

Polypodium indicum minus (glabrum), 78, tab. XXXV, fig. 2=*Pleopeltis phymatodes* Moore.

Scolopendria Indiae orientalis Musae facie, 83=[*Platycerium coronarium* Desv.].

Scolopendria major, 84, tab. XXXVII, fig. 3=*Ophioglossum pendulum* L.

Scolopendria minor (sive tectorum), 84=*Pleopeltis sinuosa* Bedd. (?).

EXPLANATION OF THE PLATES

[From drawings by the author.]

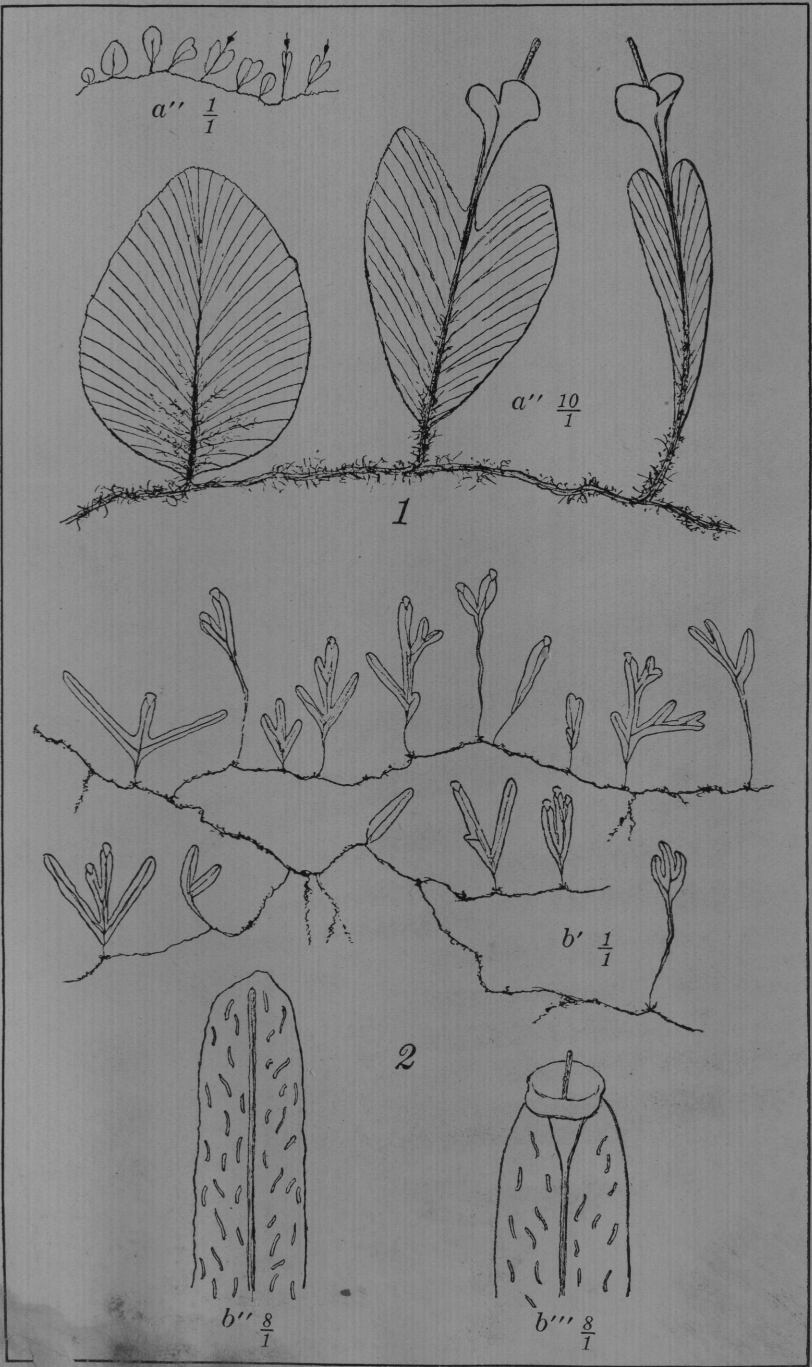
PLATE V

FIG. 1. *Trichomanes minutissimum* v. A. v. R.
  - *a'*, rhizome with variously shaped fronds, natural size.
  - *a''*, rhizome with fronds showing the veins and sori, enlarged about 10 times.

2. *Trichomanes pervenulosum* v. A. v. R.
  - *b'*, rhizome with variously shaped fronds, natural size.
  - *b''*, *b'''*, portions of a sterile and a fertile segment showing the spurious veinlets and a sorus, enlarged about 8 times.

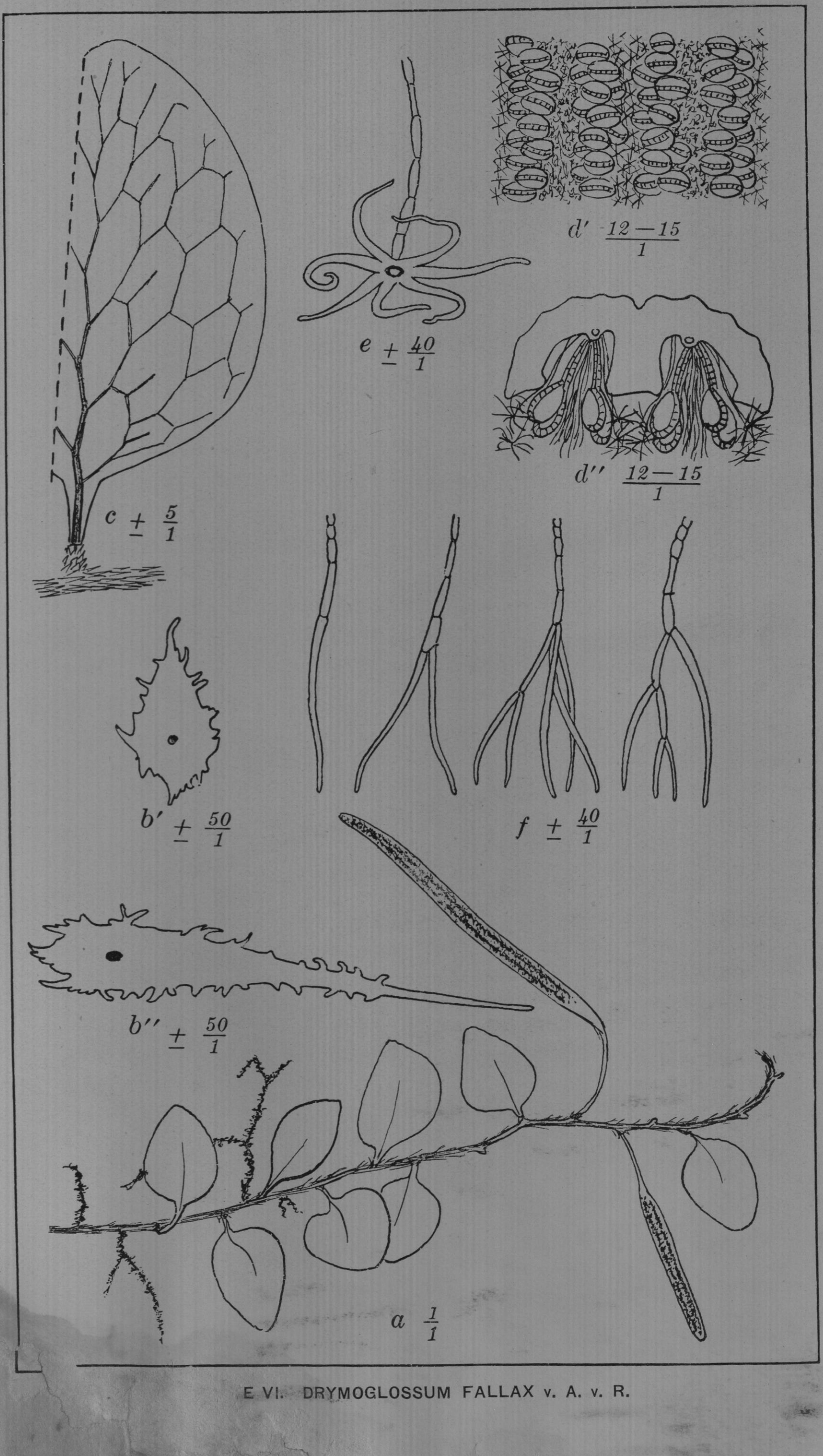
PLATE VI

Drymoglossum fallax v. A. v. R.
  - *a*, rhizome with fronds, natural size.
  - *b'*, *b''*, rhizome scales, enlarged about 50 times.
  - *c*, portion of a sterile frond showing the venation, enlarged about 5 times.
  - *d'*, portion of a fertile frond, lower surface, showing the sori and paraphyses, enlarged 10 to 15 times.
  - *d''*, transverse section of a fertile frond showing the capsules and paraphyses, enlarged 10 to 15 times.
  - *e*, stellate hairs flanking the sori, enlarged about 40 times.
  - *f*, paraphyses separating the capsules, enlarged about 40 times.



es minutissimum v. A. v. R. 2. T. pervenulosum v. A. v. R.

PLATE V.



E VI. DRYMOGLOSSUM FALLAX v. A. v. R.

THE PHILIPPINE JOURNAL OF SCIENCE, C. BOTANY.
Vol. XI, No. 3, May, 1916.

NEW OR INTERESTING PHILIPPINE VITACEAE

By E. D. MERRILL *

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In the present paper are included notes on various of the older and better known species of *Vitaceae,* with descriptions of new species in the genera *Ampelocissus, Cissus, Columella* (*Cayratia*), *Tetrastigma,* and *Leea.* Fourteen new species and a few new varieties are described, while some new combinations are made. The most radical change in proposed or accepted nomenclature is the adoption of the generic name *Columella* of Lourerio, dating from the year 1790, for those species placed by Planchon in *Cissus* § *Cayratia,* but more recently by Doctor Gagnepain placed under *Cayratia* as a valid genus. The adoption of *Columella* of Lourerio for this genus of *Vitaceae* will invalidate the genus *Columellia* of Ruiz & Pavon which typifies the family *Columelliaceae.* This action in restoring Lourerio's generic name is taken deliberately in order that the case may be brought to the attention of botanists generally, and that at some later date perhaps *Cayratia* may be included in the lists of *nomina conservanda* supplementary to those already adopted by the Vienna and Brussels Botanical Congresses.

AMPELOCISSUS Planchon

AMPELOCISSUS OCHRACEA (Teysm. & Binn.) comb. nov.

Cissus ochracea Teysm. & Binn. in Nat. Tijdschr. Nederl. Ind. 27 (1864) 35.

Vitis ochracea Teysm. ex Planch. in DC. Monog. Phan. 5 (1887) 409, in syn.; Ceron Cat. Pl. Herb. (Manila) (1892) 51.

Ampelocissus imperialis Merr. & Rolfe in Philip. Journ. Sci. 3 (1908) Bot. 110, non Planch.

CULION, *Merrill 668,* February, 1903. MINDANAO, Lake Lanao, Camp Keithley, *Mrs. Clemens 331,* March, 1906, *s. n.,* November, 1906: District of Davao, Mati, *Piper 447,* May, 1911: Province of Agusan, *Elmer 13600,* August, 1912. BASILAN, *Hallier s. n.* (sterile), January, 1904.

Var. **TRILOBATA** var. nov.

A typo differt foliis profunde trilobatis.

POLILLO, *Bur. Sci. 10773 McGregor,* November, 1909. LUZON, Province of Tayabas, Infanta, *Bur. Sci. 9351 Robinson,* August, 1909. MINDANAO, Province of Surigao, Hinatuan, *Piper 490,* May, 1911.

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This species has previously been reported from the Philippines as *Ampelocissus imperialis* Planch., but that identification was certainly erroneous, although manifestly *Ampelocissus ochracea* and *A. imperialis* are closely allied. There is now a specimen in the herbarium of the Bureau of Science collected in Sumatra by Teysmann, manifestly a cotype of *Ampelocissus imperialis* (Miq.) Planch., which differs from our Philippine material in its larger, more numerously nerved leaves, and especially in the basal lobes of the leaves overlapping. Planchon has reduced "*Vitis ochracea* Teysm." to *Ampelocissus imperialis*, but from his citation it is evident that he did not see the published description of *Cissus ochracea* T. & B. The type of Teysmann's species was from Celebes, a plant cultivated in the Botanical Garden at Buitenzorg, and his description appears to me to apply to our Philippine form and not to *Ampelocissus imperialis* Planch. I have accordingly reinstated Teysmann's species, and transferred it to its proper genus, *Ampelocissus*.

AMPELOCISSUS BOTRYOSTACHYS Planch. in DC. Monog. Phan. 5 (1887) 413; Gagnep. in Bull. Soc. Hist. Nat. Autun 24 (1911) 20.

This characteristic endemic species was based on a specimen collected by Cuming in the vicinity of Mount Banahao, Luzon, distributed as number 820 of Cuming's Philippine collection, but until recently has not been rediscovered. Additional specimens, all from the Province of Laguna, Luzon, are as follows: near Paete, *Baker 3695;* Lilio, *Gates 6471* coll. *Quisumbing;* San Antonio, *Bur. of Sci. 10994, 16660 Ramos.*

AMPELOCISSUS MARTINI Planch. in DC. Monog. Phan. 5 (1887) 373; Gagnep. l. c. 22.

Ampelocissus barbata Merr. & Rolfe in Philip. Journ. Sci. 3 (1908) Bot. 110, non Planch.

LUZON, Province of Batangas, Balayan, *Phil. Pl. 1879 Ramos,* August, 1914. CUYO, *Bur. Sci. 21376 Escritor,* July, 1913. PALAWAN, Apulit Island, Taytay Bay, *Merrill 9425,* May, 1913. BANTON, *McGregor 350,* July, 1905. GUIMARAS, *For. Bur. 43 Ritchie,* August, 1903. SEMERARA, *Merrill 4150,* June, 1905.

This was previously determined and reported as *Ampelocissus barbata* Planch., a very closely allied species, but Doctor Gagnepain has recently referred my number 4150 (not 3150 as cited by him) to the Indo-Chinese species *A. martini* Planch. After a reëxamination of our material, the descriptions, and a duplicate of *Pierre 1803* from Cochinchina, I agree with Gagnepain's identification of the Philippine specimen.

AMPELOCISSUS PAUCIFLORA sp. nov. § *Euampelocissus.*

Species ut videtur *A. aculeatae* et *A. acetosae* affinis, differt inermibus, omnibus partibus glabris, foliolis oblongo-ovatis ad ovato-lanceolatis, acute acuminatis, inflorescentiis paucifloris.

A slender, unarmed, scandent vine, entirely glabrous, 6 to 8 m in length, the branches and branchlets terete, brownish or purplish when dry, often glaucescent. Leaves pedately 5- to 7-foliolate, their petioles 2 to 2.5 cm long; leaflets submembranaceous or chartaceous, oblong-ovate to ovate-lanceolate, the outermost lateral ones smaller than the others, 4 to 8 cm long, 2 to 3.5 cm wide, the base acute, the apex rather slenderly and very sharply acuminate, the margins in the upper one-half or two-thirds with distant, small, usually appressed, sharp teeth, dull, the upper surface pale-yellowish to olivaceous when dry, the lower surface paler and more or less glaucous, the nerves and reticulations distinct; petiolule of the middle leaflet 7 to 10 mm long, the common one of the lateral leaflets usually a little longer, their petiolules proper 3 to 4 mm long. Peduncles leaf-opposed, slender, 7 to 9 cm long, forked, bearing the inflorescence and a slender, usually forked tendril. Cymes subumbellate, the flowers few, 6 to 15 in the material examined, umbellately arranged, their pedicels 2 to 3 mm long, the bracteoles oblong-ovate, 1 mm long. Calyx shallow, very obscurely 5-toothed, 1.2 mm in diameter. Petals 5, free, purple, oblong, obtuse, 2 mm long, cucullate. Filaments about 1 mm long, more or less flattened; anthers orbicular-ovoid, 0.5 mm long. Ovary apparently purple, ovoid, distinctly 5-angled, 1 to 1.2 mm long, the style none. Fruit dark-purple or nearly black, fleshy, globose, 7 to 9 mm in diameter when dry and often somewhat glaucous, containing three or four seeds. Seeds narrowly obovoid, 6 mm long, smooth and shining, the base acute, the apex rounded, the two internal faces concave, the back convex, with a median, longitudinal, shallow depression bearing the linear-oblong chalaza; albumen T-shaped in cross-section.

LUZON, Province of Zambales, Baquilin River, *For. Bur. 6957 Curran* (type), May 9, 1907, clambering over shrubs in dry river bed: Province of Bataan, Lamao River, *Merrill 3280*, October, 1903, in thickets on bluffs along the seashore: Province of Union, San Fernando, *Bur. Sci. 21116 Escritor*, June, 1913. CUYO, *Bur. Sci. 21363 Escritor*, July, 1913. PALAWAN, Taytay, *Merrill 9377*, May, 1913, in thickets along the seashore. CALUSA, *Bur. Sci. 15659 Fénix*, July, 1912.

A species well characterized by its pedately 5- to 7-foliolate leaves, its sharply acuminate leaflets which are more or less glaucous beneath, and its slenderly peduncled, few-flowered inflorescences.

AMPELOCISSUS MULTIFOLIOLA sp. nov. § *Kalocissus*.

Frutex scandens subtus foliis petiolis ramulis inflorescentiisque dense rufo-tomentosis, vel ramulis pallide tomentosis, foliis pedatim 13-foliolatis, foliolis anguste oblongis vel oblongo-lanceolatis, usque ad 20 cm longis, acuminatis supra repando-dentatis; inflorescentiis pedunculatis, spicis numerosis, patulis, gracilis, 2 ad 5 cm longis; floribus 5-meris, glabris, brevibus; fructibus carnosis, ellipsoideis, 2 cm longis.

A scandent tendril-bearing shrub, the branches terete, tomentose with rather long, matted hairs which in age become nearly white. Tendrils stout, 40 cm long and upward. Leaves pedate-palmately compound, each with 13 leaflets, the three central leaflets palmate, their petioles 2.5 to 3 cm long, the other 5 leaflets on each side serially attached to a branch of the petiole which is 5 to 6 cm long, subscorpoid in arrangement; leaflets narrowly oblong to oblong-lanceolate, chartaceous, the central ones 18 to 20 cm long, about 3 cm wide, the outer lateral ones shorter, the outermost one very inequilateral, all distantly sinuate-toothed above the middle, subacute and somewhat inequilateral at the base, or the outermost ones rounded, sharply acuminate at the apex, the upper surface glabrous and shining, the lower densely rufous-tomentose, the lateral veins distinct, 7 to 9 on each side of the midrib; petiolules tomentose, those of the interior leaflets 2.5 to 3 cm long, of the outer ones progressively shorter, the outermost leaflets subsessile. Inflorescence tomentose, peduncled, the flower-bearing part 15 to 20 cm long, the spikes 20 to 30, slender, spreading, 4 to 5 cm long. Flowers 5-merous, sessile, glabrous, scattered, each subtended by a small bracteole, the calyx shallow, 1.5 mm in diameter, obscurely toothed. Petals 5, oblong-elliptic, acute, 2.5 mm long. Anthers about 0.8 mm long. Ovary ovoid, sulcate, glabrous. Fruit very fleshy, pink, glabrous, ellipsoid, rounded, 2 cm long, with a single seed, the seed narrowly ovate in outline, acuminate, base rounded or slightly cordate, about 1 cm long, 3-angled, two lateral angles much sharper than the inner one, the back with an obscure protuberance, the outer face convex, the inner two slightly concave.

LUZON, Province of Laguna, Dahican, *Bur. Sci. 16539 Ramos*, September 14, 1912, in damp forests.

A most characteristic species, distinguishable by its leaf-characters from all forms previously described. The numerous leaflets, thirteen, are pedate-palmate in arrangement, the inner three with their proper petiolules, the outer five on each side attached to a common branch of the petiole proper.

AMPELOPSIS Michaux

AMPELOPSIS HETEROPHYLLA (Thunb.) Sieb. & Zucc. in Abhandl. Baier. Akad. Wissensch. 4^2 (1846) 197; Planch. in DC. Monog. Phan. 5 (1887) 455.

Var. **SINICA** (Miq.) comb. nov.

Vitis sinica Miq. in Journ. Bot. Néerl. 1 (1861) 125.

Ampelopsis heterophylla var. *hancei* Planch. in DC. Monog. Phan. 5 (1887) 457; Gagnep. in Mém. Soc. Hist. Nat. Autun 24 (1911) 6.

This variety is represented in our herbarium by over thirty specimens from the Philippines, from the Batanes Islands, Luzon, Mindoro, Palawan, and Mindanao. It is especially abundant in Mountain Province, Luzon. It is widely distributed in southern China, and is known from Tonkin and Formosa.

Var. **HUMULIFOLIA** (Bunge) comb. nov.

Ampelopsis humulifolia Bunge Enum. (1831) 12.

Vitis heterophylla var. *humulifolia* Hook. f. in Curtis's Bot. Mag. *t. 5682.*

Ampelopsis heterophylla var. *bungei* Planch. in DC. Monog. Phan. 5 (1887) 455; Gagnep. l. c. 7.

LUZON, Province of Nueva Vizcaya, Bagabag, *Bur. Sci. 8170 Ramos;* Bontoc Subprovince, *Bur. Sci. 5973 Ramos,* intermediate between this variety and the preceding one. MINDANAO, District of Davao, *DeVore & Hoover 132.*

Widely distributed in China, extending southward to Hongkong, not previously reported from the Philippines.

Under our rules of priority, if these varieties are to be recognized, the earliest valid names must be adopted, not those arbitrarily selected by Planchon. Many American botanists would consider the specific name *heterophylla* S. & Z. (1846), to be invalidated in *Ampelopsis* by the earlier *Ampelopsis heterophylla* Blume (1825) = **PARTHENOCISSUS HETEROPHYLLA** (Blume) comb. nov. (*Cissus landuk* Hassk., *Vitis landuk* Miq., *Landukia landuk* Planch., *Parthenocissus landuk* Gagnep.).

CISSUS Linnaeus

CISSUS DISCOLOR Blume Bijdr. (1825) 181; Planch. in DC. Monog. Phan. 5 (1887) 354; Gagnep. in Not. Syst. 1 (1911) 354.

MINDANAO, Province of Misamis, Mount Malindang, *For. Bur. 4528, 4737 Mearns & Hutchinson,* May, 1906, altitude 700 to 1,500 m: District of Zamboanga, Sax River Mountains, *Merrill 8105,* November, 1911, altitude 900 m.

Gagnepain, l. c., refers to this species *Loher 377, 378,* from Luzon, which I have not seen. The Mindanao specimens agree closely with the descriptions of the species, and with specimens in the herbarium of the Bureau of Science determined by Gagnepain, *Thorel 1392* from Cochinchina, and *Bons d'Anty* from Yunnan.

India to southern China, southward to Java and Celebes.

CISSUS OBLONGIFOLIA sp. nov. § *Eucissus.*

Suffruticosa, scandens, inflorescentiis parce furfuraceis exceptis glabra; foliis oblongis vel oblongo-ovatis, membranaceis, 10 ad 20 cm longis, basi subtruncatis vel rariter acutis, apice breviter acuminatis, margine distanter denticulatis; cymis usque ad 10 cm longis; floribus 4-meris, 4 mm longis; fructibus oblongo-ovoideis, junioribus breviter rostratis, 1.2 ad 1.5 cm longis.

A scandent, tendril-bearing vine reaching a height of from 4 to 10 m, somewhat fleshy when fresh, the older stems somewhat compressed when dry, the younger ones straw-colored or somewhat greenish, terete or obscurely angled, smooth, slightly striate when dry, glabrous except the sparingly furfuraceous inflorescence. Leaves green, membranaceous, of the same color and shining on both surfaces when dry, oblong to oblong-ovate, 10 to 20 cm long, 3 to 8 cm wide, the upper ones usually smaller or at least narrower than the lower ones, the apex shortly acuminate, the base truncate, rarely subacute, never cordate, the margins with distant minute teeth opposite the excurrent ends of the primary and secondary nerves; nerves about 6 on each side of the midrib, rather prominent, the reticulations lax; petioles about 3 cm long. Tendrils leaf-opposed, entire, up to 20 cm long. Cymes axillary and terminal, lax, up to 10 cm long, peduncled. Flowers 4-merous, greenish-white, 4 mm long, the buds narrowly ovoid. Calyx cup-shaped, truncate. Petals oblong-ovate, 3 to 4 mm long, 2 mm wide, acute, glabrous. Anthers 1 mm long, longer than wide. Fruit dark-purple when mature, fleshy, ovoid, 1.2 to 1.5 cm long, when young oblong-ovoid and somewhat rostrate. Seed smooth, ovoid, base somewhat rostrate.

LUZON, Province of Bataan, Lamao River, *For. Bur. 2122* (type), *1927 Borden,* October, 1904, altitude about 130 meters, *Whitford 1056, Williams 248, 586, Merrill 3793, Elmer 6669, For. Bur. 2193 Meyer:* Province of Laguna, Los Baños, *Bur. Sci. 6611 Robinson,* February, 1909. In thickets and forests, at low altitudes.

I originally wrote the description of this species in 1904, but later considered it to be the same as *Cissus rostrata* Korth., and so recorded it.[1] After an examination of the material in the Kew Herbarium, I came to the conclusion that *Cissus rostrata* Korth., was a different species, as yet not found in the Philippines, from which *Cissus oblongifolia* differs in its broader leaves which are not rostrate-acuminate at the apex. The present species is manifestly allied to *Cissus repens* Lam., but is distinguished by its quite differently shaped leaves and much larger flowers.

CISSUS QUADRANGULARIS L. Mant. 1 (1767) 39; Planch. in DC. Monog. Phan. 5 (1887) 510.

LUZON, Province of Cagayan, *For. Bur. 16871 Bacani,* February, 909: Province of Batangas, *Cuzner 41,* December, 1907: Manila, *Merrill s. n.* September, 1909. CEBU, *Barrow 25,* June, 1904. NEGROS, *Piper 50,* May, 1911. SIQUIJOR, *Piper 395,* May, 1911.

A species found in the drier parts of the Archipelago, with the appearance of having been introduced. It is well characterized by its stout, green, very fleshy, 4-angled stems, which shrink much in drying.

Tropical Africa and tropical Asia to Malaya.

CISSUS REPENS Lam. Encycl. 1 (1783) 31; Planch. in DC. Monog. Phan. 5 (1887) 504.

This species is based on *Neriam Pulli* Rheede Hort. Malabar. 7: *t. 48,* for Lamarck in his original description cites no specimen, giving only the reference to Rheede cited above and a reference to Ray's Historia Plantarum. Rheede's figure is an excellent one, but represents a plant with leaves having a deeper and much narrower basal sinus than any Philippine material referred to the species that I have seen. In our abundant material the leaves are always broadly ovate, but with the basal sinus very broad and rather shallow, the base sometimes being truncate or subtruncate. I refer here the following material:

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[1] Philip. Journ. Sci. 1 (1906) Suppl. 89.

LUZON, Benguet Subprovince, *Elmer 6467:* Province of Nueva Ecija, *Bur. Sci. 5267 McGregor:* Province of Zambales, *Hallier s. n.:* Province of Bataan, *Williams 193, For. Bur. 1785 Borden, Merrill 3151, 1582, Elmer 6751:* Province of Laguna, *For. Bur. 13315 Tamesis, Bur. Sci. 12014 Ramos:* Province of Rizal, *Bur. Sci. 1386 Ramos:* near Manila, *Marave 135.* APO ISLAND, *Merrill 410.* PALAWAN, *Bur. Sci. 246 Bermejos.* TICAO, *For. Bur. 1071 Clark.* NEGROS, *For. Bur. 13704, 17425 Curran.* MINDANAO, District of Zamboanga, *Bur. Sci. 11787 Robinson:* District of Davao, *Piper 462:* District of Cotabato, *Bur. Sci. 11557 Robinson.*

One nearly constant character of the plants referred here is that they readily break up in drying, the stems breaking at the nodes and the leaves readily becoming detached, this fragile character being also indicated by Rheede for his *Neriam Pulli.* The plant is somewhat succulent and difficult to dry properly. The fruits are fleshy, purple, and very acrid to the taste. According to Borden the stinging sensation in the mouth lasts for twenty-four hours after tasting the fruit.

Var. **LUZONIENSIS** var. nov.

A typo differt foliis minoribus, 4 ad 6 cm longis, membranaceis, in partibus ¾ superioribus sensim angustatis, longe acuminatis, basi late cordatis vel truncatis.

LUZON, Province of Rizal, Bosoboso, *For. Bur. 3317 Ahern's collector,* September, *Bur. Sci. 4576, 13613* (type) *Ramos,* August; San Mateo, *For. Bur. 1840 Ahern's collector,* September.

This form is very different in appearance from the material I have above referred to *Cissus repens* Lam., and is not at all like Rheede's figure, the type of *Cissus repens* Lam., in leaf-form. It is much more slender than is the Philippine form of *Cissus repens* Lam., does not show a tendency to break in drying and has smaller, thinner, differently shaped leaves, more or less gradually narrowed from the lower one-fourth to the rather slenderly acuminate apex. When mature fruits are known it may be found better to treat it as a distinct species.

COLUMELLA Loureiro

(*Cayratia* Juss., *Cissus* § *Cayratia* Planch.)

In the year 1911 Doctor F. Gagnepain[2] in connection with his studies on the *Vitaceae* of Indo-China, came to the conclusion that *Cayratia,* as characterized by Jussieu in 1823, constitutes a valid genus distinct from *Cissus.* He accordingly adopted Jussieu's generic name, and considered under it sixteen species, most of which had been described by previous authors under *Vitis* and *Cissus*. After considerable study of the Philippine forms, and such Indo-Malayan representatives of the genera *Vitis, Cissus, Cayratia,* and *Tetrastigma* as are available here, I have very definitely concluded that Gagnepain's position regarding the validity of *Cayratia* as a distinct genus is entirely justifiable, and that it is just as distinct from *Vitis* and *Cissus* as are, for instance, *Tetrastigma, Ampelopsis,* and *Ampelocissus.*

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[2] Un genre méconnu: classification des *Cissus* et *Cayratia.* Not. Syst. 1 (1911) 339–362.

As to the validity of the name *Cayratia,* however, there is a distinct cause for disagreement, at least if we accept literally the rules of nomenclature promulgated by the last two international botanical congresses. The oldest generic name for the group is *Columella* Lour., published in 1790, and typified by *Columella pedata* Lour. (*Vitis pedata* Wall., *Cissus pedata* Lam., *Cayratia pedata* Juss.), which extends from India and Ceylon to Indo-China and Java. It is distinctly unfortunate, however, that the adoption of *Columella* of Loureiro must invalidate *Columellia* Ruiz & Pavon, 1794, a genus that has been universally recognized since its publication, and which typifies the family *Columelliaceae.* However, this case is not covered by the lists of *nomina conservanda* adopted by the Vienna and the Brussels Botanical Congresses, and a strict interpretation of the rules adopted by those congresses will necessitate the adoption of Loureiro's generic name *Columella* in place of Jussieu's name *Cayratia.* In order that this case may be brought to the attention of future congresses, and that *Columella* of Loureiro may definitely be abandoned in favor of *Cayratia,* which should be included in the list of *nomina conservanda* if any generic name is so included, I purposely take up the generic name *Columella,* and transfer to it the Philippine species known to me at this time.

COLUMELLA GENICULATA (Blume) comb. nov.

Cissus geniculata Blume Bijdr. (1825) 184.

Cayratia geniculata Gagnep. in Not. Syst. 1 (1911) 345.

This species extends from Indo-China to the Sunda Islands. To it I refer the following Philippine material: LUZON, Province of Nueva Viscaya, *Merrill 219, Bur. Sci. 8219 Ramos:* Province of Batangas, *Cuzner 25:* Province of Pampanga, *Bolster 22:* Province of Laguna, *Alberto s. n., For. Bur. 21310 Foxworthy & Catalan, Gates 5751, Bur. Sci. 14975 Ramos:* Province of Bulacan, *Bur. Sci. 21721 Ramos:* Province of Pangasinan, *Bur. Sci. 18310 Otanes.*

The material here referred to *Columella geniculata* is characterized by being rather softly pubescent, with long petioles, rather long petiolules and inflorescences, the latter about one-half as long as the petioles. The material agrees closely with the published descriptions, and Planchon has

credited the species to Luzon on the basis of *Cuming 513* from Laguna Province. Blume's original description, however, as well as Planchon's later one, is incomplete and unsatisfactory. The specimens cited above appear to fall under *Cayratia geniculata* as keyed out by Gagnepain, and are apparently close to the form designated by Blume as the variety *mollis*.

Doctor Gagnepain credits to the Philippines the closely allied *Cayratia mollissima* Gagnep. (*Cissus mollissima* Planch.), the references being to specimens collected by *Baume*, near Manila, and by *Perrottet*, from Zamboanga, Mindanao. I have seen no Philippine material that I consider referable to this species, and I suspect that flowering specimens of the form I have referred to *Columella geniculata* may match the Philippine material referred by Gagnepain to *Cayratia mollissima*. The latter species is distinguished by its large fruits and large seeds, and I have no Philippine material that agrees with the species, as described, in these characters. In fruit and seed characters the material cited above agrees with *Columella geniculata*, not with *Cayratia mollissima* Gagnep.

Var. **SARCOCARPA** var. nov.

A species differt subtus foliis ad costa ramulis petiolisque parce ciliatis haud molliter pubescentibus, foliolis lateralibus basi rotundatis vel obtusis vix cordatis vel subcordatis nervis reticulisque prominentibus.

LUZON, Province of Bataan, Lamao River, *Merrill 2531* (type), June, 1903, *For. Bur. 19136 Curran*, December, 1909, *For. Bur. 1786 Borden*, August, 1904, *Elmer 6700*, November, 1904: Province of Laguna, San Antonio, *Bur. Sci. 10951 Ramos*, August, 1910. MINDORO, Baco River, *Merrill 993*, April, 1903.

This form may ultimately prove to be worthy of specific rank, but as there is some doubt in my mind as to the correctness of my present interpretation of *Columella geniculata*, I have considered it expedient to indicate the present form merely as a variety. In aspect, pubescence, the much more prominent veins and reticulations, and somewhat in the shape of its leaflets it is decidedly different from the form I have referred to *Columella geniculata*, although in floral characters it closely approaches that species. The fruits when fresh are soft, fleshy, somewhat watery, pink, globose, and about 1.5 cm in diameter, shrinking much in drying. It occurs in thickets and in forests along streams at low altitudes.

COLUMELLA CORNICULATA (Benth.) comb. nov.

Vitis corniculata Benth. Fl. Hongk. (1861) 54.
Cissus corniculata Planch. in DC. Monog. Phan. 5 (1887) 563.
Cayratia corniculata Gagnep. in Not. Syst. 1 (1911) 347.

LUZON, Province of Bataan, Lamao River, *Merrill 2535, 7206*, June, 1903, March, 1911, with flowers and fruit, *Whitford 23*, April, 1904, with fruit only, *For. Bur. 19155 Curran*, December, 1909, with flowers and fruit, *For. Bur. 2170 Meyer*, with flowers and fruit, *Williams 25*, with fruit, *Elmer 6672*, with fruit: Province of Tayabas, Lucban, *Elmer 7207*, with flowers: Province of Laguna, San Antonio, *Bur. Sci. 10935 Ramos*, August, 1910: Province of Albay, *For. Bur. 12389 Curran*, June, 1908, with buds and fruit.

This species has previously been reported only from Hongkong and southern China, and most of the specimens cited above have here been determined as *Cissus japonica* Willd. In fact Gagnepain, conforming with this identification, recently cited *Whitford 23*, fruiting specimen only, under Willdenow's species. An examination of the material in all stages, however, shows that the petals are very prominently corniculate, and the anthers are not longer than broad, so that the material cannot be referred to *Cissus japonica*. In all essential characters the Philippine specimens appear to agree with *Cissus corniculata* Planch., and with a single Hongkong specimen, *Hongkong Bot. Gard. 1982*, April 22, 1904, in the herbarium of the Bureau of Science. This latter specimen has somewhat narrower, differently shaped, and fewer-nerved leaflets than has the Philippine material, and comparison of a full series of specimens may show sufficiently constant characters to warrant the later separation of the Philippine plant as a distinct species. At any rate our material cited above represents a form as distinct from *Cissus japonica* Willd., as is the Hongkong (typical) *Cissus corniculata* Planch.

COLUMELLA TENUIFOLIA (Heyne) comb. nov.

Cissus tenuifolia Heyne in Wall. Cat. (1831) no. 6022; Planch. in DC. Monog. Phan. 5 (1887) 563.
Vitis tenuifolia W. & A. Prodr. (1834) 129.
Cayratia tenuifolia Gagnep. in Not. Syst. 1 (1911) 348.

BATANES ISLANDS, Batan, *Bur. Sci. 3702 Fénix*, June, 1907. LUZON, Province of Tayabas, Casiguran, *Bur. Sci. 3110 Mearns*. BASILAN, *Hallier s. n.*, January, 1904.

The specimens cited above previously have been referred to *Cissus japonica* Willd., but following Gagnepain's recent arrangement of the species of *Cayratia* they can hardly represent Willdenow's species, as the anthers are orbicular or suborbicular. The Philippine specimens cited above certainly represent the same species as *Callery 93*, and *Bodinier 2290*, in our herbarium, both cited by Gagnepain under *Cayratia tenuifolia* Gagnep.

India to southern China and Formosa, southward to Indo-China and the Andaman Islands.

I have seen no Philippine material that I consider to be referable to *Cayratia japonica* (Willd.) Gagnep. In the present paper most of the specimens previously so named are referred to *Columella corniculata* (Benth.) Merr., and the remaining material to the present species.

COLUMELLA TRIFOLIA (Linn.) comb. nov.

Vitis trifolia Linn. Sp. Pl. (1753) 293.
Cissus carnosa Lam. Encycl. 1 (1783) 31.
Cissus trifolia K. Sch. Fl. Kaiser Wilhelmsl. (1889) 71.
Cayratia carnosa Gagnep. in Not. Syst. 1 (1911) 347.

This species is common and widely distributed in the Philippines, being found throughout the Archipelago at low altitudes in the settled areas. India to China and southward to tropical Australia.

COLUMELLA PEDATA Lour. Fl. Cochinch. (1790) 85.

Cissus pedata Lam. Encycl. 1 (1783) 31.
Cayratia pedata Juss. in Dict. Class. Hist. Nat. 4 (1823) 136.

LUZON, Province of Rizal, Pantay, *Bur. Sci. 13628 Ramos*, August, 1911.

This species is the type of the genus *Columella* of Loureiro, and extends from India and Ceylon to Indo-China and Java.

COLUMELLA PTERITA sp. nov.

Scandens, glabra, ramulis ramulisque herbaceis alato-hexagonis; foliis pedatim 7-foliolatis, petiolulo medio unifoliolato, lateralibus 3-foliolatis, foliolis membranaceis, grosse apiculato-serratis, longe tenuiter acuminatis, usque ad 9 cm longis; seminibus 4, faceibus ventralibus 2.

Scandent, glabrous in all parts, the branches somewhat fleshy when fresh, 6-angled, narrowly winged down each angle, the wings about 1 mm wide. Tendrils slender, forked, up to 30 cm in length. Leaves pedately 7-foliolate, their petioles 3 to 6 cm long; leaflets membranaceous, glabrous, ovate-lanceolate, the base acute, the apex long and slenderly acuminate, the margins coarsely serrate, the teeth apiculate, 7 to 9 cm long, 2 to 3.5 cm wide; petiolule of the middle leaflet 1 to 1.5 cm long, the common ones of the three lateral leaflets somewhat shorter, the petiolules proper of the lateral leaflets 5 mm long or less. Cymes rather lax, leaf-opposed or subterminal, about 12 cm long including the peduncle. Flowers greenish-white, 4-merous. Calyx truncate. Petals 4, 2 mm long, somewhat cucullate at the apex, obtuse, not at all corniculate. Fruit subglobose, about 1 cm in diameter, 4-seeded, the seeds trigonous, about 5 mm long (immature), the angles sharp, the faces somewhat rugose, the albumen in the form of the letter T in cross section.

UBIAN ISLAND, Sulu Archipelago, *Merrill 5388*, October 12, 1906, in thickets back of the beach, distributed as *Cissus alata*.

Similar to and manifestly allied to *Cayratia japonica* (Willd.) Gagnep., but distinguished from this and allied forms by its 7-foliolate leaves.

COLUMELLA SIMPLICIFOLIA sp. nov.

Frutex scandens, glaber, ramis ramulisque teretibus; foliis 1-foliolatis, petiolo 3 ad 4 cm longo, foliolis coriaceis, ovatis ad late ovato-ellipticis, usque ad 10 cm longis, acuminatis, basi late rotundatis, margine distanter crenulato-serrulatis, nervis utrinque circiter 7, tenuibus, indistinctis vel subobsoletis, reticulis obsoletis; inflorescentiis axillaribus, 5 ad 7 cm longis, floribus ut videtur in ramulis ultimis umbellatim dispositis; fructibus carnosis, ellipsoideis ad obovoideis.

A scandent glabrous vine, the branches and branchlets terete, glabrous, brownish when dry. Leaves reduced to a single leaflet, the petioles 3 to 4 cm long, the leaflet coriaceous, very brittle when dry, ovate to broadly ovate-elliptic, 7 to 10 cm long, 3.5

to 6 cm wide, narrowed above to the rather prominently acuminate apex, the acumen blunt, the base broadly rounded, often slightly inequilateral, margins distantly crenulate-serrulate in the upper two-thirds, the basal part entire, of about the same color on both surfaces when dry, rather pale, not shining; lateral nerves about 7 on each side of the midrib, slender, obscure or subobsolete, the reticulations obsolete. Tendrils slender, 7 cm long or less. Inflorescence axillary, solitary, 5 to 7 cm long, rather narrow, the primary branches 1.5 cm long or less. Flowers not known, apparently umbellate on the ultimate branchlets. Fruit, very immature, ellipsoid to obovoid, very fleshy, 5 to 8 mm long (apparently larger when mature), crowned by the remains of the style.

LEYTE, mountains back of Dagami, *Bur. Sci. 15308 Ramos*, August 5, 1912, in forests.

A species, although known from imperfect material, young fruits only being available, manifestly belonging in this genus. It is well characterized by its unifoliolate leaves, the single leaflets very greatly resembling the leaflets of a number of species of *Tetrastigma*. It was at first thought that the present species was referable to *Tetrastigma*, but the remains of the style and stigma on the young fruits shows no indications of the *Tetrastigma*-character, being quite entire.

TETRASTIGMA Planchon

TETRASTIGMA HARMANDII Planch in DC. Monog. Phan. 5 (1887) 435; Gagnep. in Not. Syst. 1 (1910) 320.

Tetrastima strumarum Gagnep. l. c. *321*, p. p., *quoad Merrill 3258.*

LUZON, Province of Tarlac, *Bur. Sci. 7798 Ramos*, April, 1909, in flower: Province of Tarlac, *For. Bur. 5169 Curran*, September, 1906, in fruit: Manila, *Philippine Pl. 778 Merrill*, March, 1911, in flower: Province of Bataan, Lamao River, Mount Mariveles, *Williams 383*, December, 1903, *Whitford 16*, April, 1904, in flower, *Merrill 3258*, October, 1903, in fruit, *For. Bur. 2061 Borden*, October, 1904, in fruit: Province of Rizal, Bosoboso, *For. Bur. 1855, 3194 Ahern's collector*, September, 1904, July, 1905, in fruit; Antipolo, *Merrill 1740*, March, 1903, in flower: Province of Laguna, Calauan, *Bur. Sci. 12359 McGregor*, December, 1910, in fruit; Los Baños, *Hallier*, December, 1903, sterile; Province of Tayabas, Sariaya, *Whitford 578*, August, 1904, in fruit.

This species is known to the Tagalogs as *ayo* or *ayu*, and is the one described by Blanco as *Vitis pedata* Fl. Filip. (1837) 71, ed. 2 (1845) 52 (non Linn.). The fruits are globose, russet-brown when mature, the pulp colorless or cream-colored, very juicy, acid or nearly tasteless, edible, and are eaten by the natives with fish. According to Mr. Borden's notes the fleshy leaves are also eaten by the natives.

Doctor Gagnepain[1] has referred *Merrill 3258*, fruiting specimen, to *Tetrastigma strumarum* (Planch.) Gagnep., and on the preceding page

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[1] Not. Syst. 1 (1910) 321.

Whitford 16, flowering specimen, to *T. harmandii* Planch. He says: "Je ne puis séparer de *T. Harmandii* les échantillons suivants des Philippines: Luzon central, Manille, Balic-balic, n° 356 [*Loher*]; prov. de Bataan, monts Mariveles, n° 16 [*Whitford*]." There is absolutely no doubt but that *Merrill 3258*, October, is identical with, and is the fruiting stage of, *Whitford 16*, April, from the same locality, altitude, and habitat, and that Gagnepain was in error in referring the two to different species. The Philippine material appears to me to be referable to *Tetrastigma harmandii* Planch., rather than to *T. strumarum* (Planch.) Gagnep., and so far as the specimens are comparable, agrees with *Thorel 1345* from Chochin China, in the herbarium of the Bureau of Science.

The species is not uncommon in thickets on the low dry hills about Manila, and is now occasionally found in cultivation for the purpose of covering walls, shading porches, etc. Most of the specimens cited above have been determined, and the duplicates distributed, as *Tetrastigma lanceolarium* Planch.

TETRASTIGMA PAPILLOSUM (Blume) Planch. in DC. Monog. Phan. 5 (1887) 429; Gagnep. in Not. Syst. 1 (1910) 317.

Cissus papillosa Blume Bijdr. (1825) 183.

Cissus suberosa Elm. Leafl. Philip. Bot. 2 (1908) 493.

LUZON, Province of Rizal, Oriud, *Loher 5831*, August, 1905, ♂ flowers. NEGROS, Cuernos Mountains, *Elmer 9500*, March, 1908 (type number of *Cissus suberosa* Elm.). MINDANAO, Lake Lanao, *Mrs. Clemens s. n.*, four collections, September, October, November, 1906, September, 1907, with both flowers and fruits: District of Davao, Mount Apo, *Elmer 11650*, September, 1909.

Java, Borneo, and New Guinea.

This species is well characterized by its papillose branchlets, and is apparently closely allied to *Tetrastigma ramentaceum* Planch., of Cochin China, a cotype of which is in the herbarium of the Bureau of Science. Although I have seen no extra-Philippine material of *Tetrastigma papillosum*, I have no hesitation in reducing to it *Cissus suberosa* Elmer. Mr. Elmer's species is in all respects a *Tetrastigma*, not a *Cissus*, and our material agrees perfectly with the descriptions of Blume's species.

TETRASTIGMA CLEMENTIS sp. nov.

Frutex scandens inflorescentiis exceptis glaber; foliis 3-foliolatis, foliolis chartaceis vel subcoriaceis, subellipticis, utrinque subaequaliter angustatis, basi acutis, apice breviter acuminatis, usque ad 15 cm longis, margine distanter serratis; inflorescentiis densis, brevibus, ferrugineo-pubescentibus, multifloris, breviter pedunculatis, quam petiolo brevioribus; floribus 4-meris, petalis extus pubescentibus, obtusis, ovario pubescente.

A vine, glabrous except the inflorescence, or the younger parts slightly pubescent, the tendrils up to 20 cm in length, the stems and branches terete, brownish when dry. Leaves 3-foliolate, their petioles 3 to 10 cm long; leaflets subelliptic, 9 to 15 cm long, 4.5 to 8 cm wide, subequally narrowed at both ends, the base acute, the apex shortly acuminate, chartaceous or subcoriaceous, when dry of about the same color on both surfaces, pale or brownish, dull or slightly shining, margins distantly serrate, the teeth mostly small; nerves about 8 on each side of the midrib, the reticulations obscure; petiolules of the lateral leaflets 8 to 10 mm long, of the middle one 2.5 to 4 cm long. Inflorescence axillary, dense, many-flowered, ferruginous or brownish-pubescent, 3 cm long or less, the peduncles usually about 1 cm long, umbellately branched. Female flowers 4-merous, their pedicels short. Calyx shallowly cup-shaped, 1.2 mm in diameter, very obscurely 4-toothed. Petals oblong, obtuse, cucullate, not at all corniculate, uniformly pubescent externally, about 2 mm long. Staminodes slender, dilated at the apex, about 1 mm long. Ovary cylindric-ovoid, uniformly pubescent; stigma sessile, distinctly 4-lobed, about 1 mm in diameter. Male flowers similar, shorter, 4- or 5-merous, the anthers 1 mm long. Fruit not seen.

MINDANAO, Lake Lanao, Camp Keithley, *Mrs. Clemens s. n.*, November, 1906 (type); also from the same locality, *No. 85*, January, 1906, *s. n.*, January, 1907. A specimen with male flowers, November, 1906, is probably the same; this has its leaves 3-foliolate and 1-foliolate on the same branchlet.

A species well characterized by its pubescent petals and ovaries, its 3-foliolate leaves with elliptic leaflets, and its very unequal petiolules, that of the middle leaflet being very much longer than those of the lateral ones. The dense inflorescense which is uniformly brownish or ferruginous-pubescent is also characteristic.

TETRASTIGMA ELLIPTICUM sp. nov.

Frutex scandens, glaber; foliis 3-foliolatis, foliolis ellipticis, coriaceis, in siccitate brunneis, usque ad 13 cm longis, apice acuminatis apiculatisque, base subrotundatis ad subacutis, margine distanter serrulatis; inflorescentiis amplis, ut videtur laxis, circiter 20 cm longis; fructibus anguste obovoideis, circiter 1 cm longis.

A scandent glabrous vine, the branches rather slender, terete, lenticellate, dark-colored when dry. Leaves 3-foliolate, the petioles 4 to 5 cm long, the rachis produced about 3 cm above the insertion of the lateral leaflets; leaflets 3, elliptic, sometimes elliptic-ovate, coriaceous, the smaller ones 6 cm long and 4 cm wide, the larger up to 13 cm long and 7 cm wide, brown when dry, slightly shining, the lower surface a little paler than the upper, the apex prominently and rather slenderly acuminate, the acumen apiculate, base somewhat rounded on subacute, margins distantly denticulate; lateral nerves about 8 on each side of the midrib, not prominent, the reticulations lax, faint; petiolules 5 to 8 mm long. Inflorescence axillary and terminal, lax, the axillary ones in fruit up to 20 cm long, the terminal ones sometimes 30 cm in length, divaricately branched. Flowers unknown. Fruit narrowly obovoid, about 1 cm long, 5 to 7 mm wide, smooth, narrowed below to the acute base, the apex blunt, tipped by the remains of the stigma, the pericarp thin, brown when dry, showing the rugosities of the seed which is about 8 mm long, slightly compressed, subelliptic in outline.

BASILAN, *Bur. Sci. 16173 Reillo*, September, 1912.

A species greatly resembling *Tetrastigma laxum* Merr., and unquestionably closely allied to that form; different, however, in its much larger leaflets, the rachis of the leaves much extended beyond the lateral leaflets.

TETRASTIGMA EVERETTII sp. nov.

Frutex scandens inflorescentiis exceptis glaber; foliis longe petiolatis, pedatim 5- ad 7-foliolatis, foliolis oblongis ad oblongo-obovatis, usque ad 20 cm longis, acuminatis, basi acutis, margine grosse irregulariter acute sinuato-serratis, nervis utrinque 7 ad 10, curvatis, subtus distinctis; inflorescentiis axillaribus, longe pedunculatis, 2- vel 3-pinnatim umbellatis, pubescentibus; floribus ♂ 4-meris, umbellatis, petalis extus pubescentibus, oblongis, acutis, intus cucullatis, 3.5 ad 4 mm longis.

A scandent vine, glabrous except the inflorescence, the branches terete, striate, dark-brown when dry. Leaves long-petioled, pedately 5- or 7-foliolate, the petioles 13 to 16 cm long, the leaflets oblong to oblong-obovate, 12 to 20 cm long, 4 to 8 cm wide, slightly shining, of about the same color on both surfaces when dry, the base acute, apex sharply acuminate, the margins in the upper two-thirds prominently and coarsely sinuate-serrate, the teeth irregular in size, acute; nerves 6 to 10 on each side of the midrib, distinct beneath, curved, the reticulations subobsolete; petiolule of the middle leaflet up to 4 cm in length, those of the lateral ones much shorter. Inflorescence axillary, pubescent, solitary, 2- or 3-pinnately umbellate, 10 to 12 cm long, the peduncle longer than the floriferous portion, bearing at its apex 3 to 5, elongated, primary branches. Flowers white, 4-merous, umbellately arranged at the tips of the ultimate branchlets, their pedicels pubescent, 5 to 8 mm long. Calyx disklike, truncate, 1.2 mm in diameter. Petals 4, oblong-ovate, acute or obtuse, prominently cucullate at the apex inside, 3.5 to 4 mm long, not at all corniculate. Disk prominent in the staminate flowers, glabrous, 2 mm in diameter. Filaments 2 mm long; anthers orbicular-elliptic, 1 mm long. Female flowers nor seen.

NEGROS, Barlin, *For. Bur. 11217 Everett*, April 21, 1908, reaching the tops of tall trees, growing at an altitude of about 90 meters, locally known as *lañgiñgi.*

Well characterized by its ample, long-petioled, pedately 5- or 7-foliolate leaves, its coarsely sinuate-serrate leaflets, its long-peduncled, pubescent inflorescence, and its relatively large flowers. It resembles *Tetrastigma magnum* Merr., of Luzon, but differs, among other characters, in its pubescent inflorescence.

TETRASTIGMA LAXUM sp. nov.

Frutex glaber scandens, ramis ramulisque teretibus; foliis palmatim 3-foliolatis, foliolis coriaceis, in siccitate brunneis, ellipticis vel ovato-ellipticis, 4 ad 7 cm longis, utrinque subaequaliter angustatis, basi acutis, apice acute acuminatis apiculatisque, margine supra denticulatis; inflorescentiis oppositifoliis, laxis, circiter 10 cm longis, longe pedunculatis, divaricato ramosis; floribus ♂ 4-meris, in ramulis ultimis umbellatis, petalis glabris, 2 mm longis, apiculato-acuminatis.

A scandent, entirely glabrous vine reaching a length of 20 m and a diameter of 12 cm, the branches and branchlets slender, terete, brown, the branches sparingly lenticellate. Tendrils not seen. Leaves palmately 3-foliolate, their petioles 1.5 to 3 cm long; leaflets coriaceous, dark-brown when dry, slightly shining, the lower surface a little paler than the upper, elliptic to ovate-elliptic, subequally narrowed at both ends, 4 to 7 cm long, 1.5 to 3 cm wide, the base acute, the apex rather prominently and sharply acuminate, the acumen apiculate, the margins in the upper one-half distantly and minutely denticulate; lateral nerves 4 or 5 on each side of the midrib, very obscure, the reticulations obsolete; petiolules 6 to 15 mm long, those of the lateral leaflets usually shorter than that of the middle one. Inflorescence slender, axillary, about 10 cm long, often wider than long, slenderly peduncled, divaricately branched above the middle, lax, many-flowered, the flowers umbellately disposed on the ultimate branchlets, 3 to 5 in each umbel, their pedicels 2 to 3 mm long. Male flowers: Calyx subtruncate or obscurely 4-toothed; petals 4, spreading, oblong, 2 mm long, distinctly cucullate at the apex, quite glabrous, not corniculate, but the apex apiculate-acuminate; filaments slender, 1 mm long; anthers about 0.2 mm long, broader than long; disk prominent, glabrous, obscurely 4-lobed. Female flowers and fruits not seen.

LUZON, Province of Bataan, Lamao River, *For. Bur. 2495 Borden* (type), *For. Bur. 2510 Meyer*, January, 1905, climbing on large trees in dry forests and thickets, altitude 30 to 60 meters; the flowers fragrant, pale-green.

A species well characterized by its 3-foliolate leaves, the leaflets dark-brown when dry, coriaceous; its lax, long-peduncled panicles; and its apiculate petals. It appears to be allied to *Tetrastigma brunneum* Merr., but has entirely different male flowers.

A third species with its leaves consistently dark brown when dry is represented by fruiting specimens from Benguet Subprovince, *Elmer 5976*, with immature fruits, and *Bur. Sci. 13512 Ramos*, with mature fruits. It may prove to be the same as the species just described, but it appears to be different, and has 3- to 5-foliolate leaves.

TETRASTIGMA LITTORALE sp. nov.

Frutex scandens inflorescentiis exceptis glaber, ramis teretibus; foliis pedatim 7-foliolatis, foliolis ellipticis vel ovato-ellipticis, coriaceis, usque ad 15 cm longis, in siccitate pallidis, abrupte brevissime acuminatis, basi acutis vel rotundatis, nervis utrinque 5 vel 6; inflorescentiis axillaribus, leviter pubescentibus, 3- vel 4-pinnatim umbellato-corymbosis; floribus 4-meris, petalis oblongo-ovatis, acutis, vix corniculatis, supra extus parce pubescentibus; ovario glabro.

A vine 10 to 15 m in length, glabrous except the inflorescence, the branches brownish, terete, more or less lenticellate. Leaves pedately 7-foliolate, the petioles stout, 5 to 6 cm long, the middle leaflet larger than the lateral ones, its petiolule 3 to 4 cm long, the common petiolule of the three lateral leaflets 1.5 to 2.5 cm in length, the petiolules proper 5 to 15 mm long; leaflets subcoriaceous or coriaceous, rather pale when dry, of the same color on both surfaces and dull or slightly shining, elliptic to ovate-elliptic, 8 to 15 cm long, 4.5 to 9 cm wide, the middle one larger than the others which gradually decrease in size outward, abruptly and shortly acumnate, the base acute or rounded, of the lateral ones somewhat inequilateral, the margin more or less recurved, distantly and irregularly serrate-crenate; nerves 5 or 6 on each side of the midrib, curved, the reticulations lax, obscure. Inflorescence axillary, peduncled, solitary, about as long as the petioles, sparingly pubescent with scattered hairs, the peduncle 1.5 to 2 cm long, bearing about 4 umbellately arranged primary branches of about the same length as the peduncle, these again umbellately branched, the ultimate branchlets with from 10 to 15 umbellately arranged flowers, their pedicels pubescent, 3 to 4 mm long. Pistillate flowers greenish-white, 4-merous. Calyx very obscurely and broadly lobed, or truncate. Petals 4, oblong-ovate, acute, 2.5 to 2.8 mm long, free, reflexed in anthesis, neither cucullate nor spurred, below glabrous, near the apex sparingly pubescent. Staminodes slender, 1.5 mm long. Ovary ovoid, glabrous, more or less narrowed upward but not attenuate, about 1.5 mm long; stigma sessile, disklike, obscurely and shallowly 4-lobed. Fruit (immature green, ovoid to ellipsoid, about 1 cm long.

PALAWAN, Ulugan Bay, sprawling over trees along the seashore, *Merrill 7215*, September 19, 1910.

Apparently closely allied to *Tetrastigma lanaceolarium* Planch., but distinguished by its 7-foliolate leaves, and its very differently shaped, relatively broad leaflets.

TETRASTIGMA MAGNUM sp. nov.

Frutex scandens glaber; foliis pedatim 7-foliolatis, longe petiolatis, foliolis oblongis vel elliptico-oblongis, chartaceis, usque ad 18 cm longis, subcaudato-acuminatis, margine grosse irregulariter sinuato-serratis vel serrato-lobatis, nervis utrinque 12 ad 15, distinctis; inflorescentiis oppositifoliis, amplis, usque ad 15 cm longis, laxis, subumbellato-cymosis; fructibus immaturis obovoideis, 6 mm longis.

A large, coarse, scandent vine, quite glabrous, the branches terete, striate when dry, usually olivaceous, sparingly lenticellate. Tendrils 20 to 30 cm in length. Leaves large, pedately 7-foliolate, their petioles stout, 8 to 12 cm long; leaflets chartaceous, brownish-olivaceous when dry, shining, oblong to ellipticoblong, 10 to 18 cm long, 4 to 7 cm wide, the middle one usually somewhat larger than the outermost lateral ones, base acute, apex rather shortly, abruptly, subcaudate acuminate, margins very coarsely and irregularly sinuate-serrate or serrate-lobed, the teeth sharp; nerves rather prominent on the lower surface, 12 to 15 on each side of the midrib; petiolule of the middle leaflet up to 5 cm long, the common ones of the 3 lateral leaflets about 3 cm long, their petiolules proper 1 to 1.5 cm long, of the outermost shorter than the inner ones. Inflorescence leaf-opposed, lax, ample, about 15 cm long, peduncled, at first dichotomously branched, then umbellately branched, the flowers umbellately arranged on the ultimate branchlets. Flowers 4-merous. Calyx truncate. Petals not seen. Ovary ovoid, glabrous, the stigma sessile, distinctly 4-lobed, the lobes about as long as wide. Fruit immature, obovoid, about 8 mm long.

LUZON, Province of Rizal, without definite locality, *Bur. Sci. 13610 Ramos*, August, 1911, in forests.

A species well characterized by its large, pedately 7-foliolate, long-petioled leaves; its rather prominently nerved, very coarsely toothed leaves; and its ample, lax inflorescence, which is about 15 cm in length and about as wide as long.

TETRASTIGMA ROBINSONII sp. nov.

Frutex scandens inflorescentiis exceptis glaber; ramis teretibus, striatis, leviter lenticellato-rugosis; foliis 3-foliolatis, foliolis oblongo-ovatis, breviter acuminatis, chartaceis, usque ad 18 cm longis, margine distanter denticulato-crenatis; inflorescentiis axillaribus, pubescentibus bipinnatim umbellatis, quam petiolo brevioribus; floribus 4-meris, petalis extus pubescentibus, oblongo-ovatis vel ovatis, obtusis, apice vix corniculatis, haud cucullatis; ovario glabro; stigmatibus sessilibus, 4-lobatis, lobis brevibus.

A scandent shrub, glabrous except the inflorescence. Branches terete, striate, brownish-gray when dry, longitudinally striate, sparingly rugose with prominent lenticels. Tendrils simple, leaf-opposed, 15 cm long or longer. Leaves 3-foliolate, their petioles about 5 cm long; leaflets oblong-ovate, chartaceous, rather pale when dry, of the same color and slightly shining or dull on both surfaces, 11 to 18 cm long, 4.5 to 10 cm wide, the apex shortly acuminate, the base acute or somewhat rounded, the margins distantly denticulate-crenate; nerves 7 to 10 on each side of the midrib, distant, curved, not very prominent, the reticulations lax, obscure; petiolule of the middle leaflet 3 to 3.5 cm long, of the lateral ones about 1 cm long. Inflorescence axillary, peduncled, bipinnately umbellate, pubescent, about 4 cm long, the peduncles solitary or in pairs, 1.5 to 2 cm long, each bearing from 3 to 5 umbellately arranged primary branches 1 to 1.5 cm in length, each primary branch bearing numerous, umbellately arranged flowers, their pedicels 3 to 5 mm in length. Staminate flowers: Calyx disklike, truncate, about 1.5 mm in diameter. Petals 4, ovate to oblong-ovate, uniformly pubescent externally, 2.5 mm long, free, obtuse, not corniculate at the apex and but little cucullate. Staminodes about 1 mm long, slender, spatulate. Ovary ovoid or subglobose, glabrous, not attenuate, apex abruptly rounded, 1.5 mm long; stigma sessile, 4-lobed, the lobes spreading, short, about as long as wide.

POLILLO, *Bur. Sci. 10400 McGregor,* October 18, 1909, flowers pale yellow.

Apparently most closely allied to *Tetrastigma quadridens* Pierre of Cochin China, but still very different from that species according to its description.

TETRASTIGMA STENOPHYLLUM sp. nov.

Species *T. loheri* similis et affinis, differt foliolis angustioribus, ovario papilloso.

A tendril-bearing slender vine, glabrous except the inflorescence, the branchlets terete, slender, grayish-brown, sparingly lenticellate. Leaves 3-foliolate, their petioles 1 to 1.5 cm long; leaflets lanceolate, chartaceous, rather pale, of the same color on both surfaces and slightly shining when dry, acuminate, base acute or somewhat rounded, the margins very distantly and obscurely denticulate or subentire, the middle leaflet longer than the lateral ones, equilateral, 10 to 12 cm long, 2 to 2.5 cm wide, its petiolule as long as the petiole, the lateral leaflets somewhat inequilateral, sometimes slightly falcate, 7 to 10 cm long, their petioles about 3 mm long; lateral nerves about 10, obscure, the reticulations lax, subobsolete. Inflorescence pubescent, 2 to 3 cm long, 2- or 3-pinnately umbellate-corymbose, the flowers umbellately arranged on the ultimate branchlets, their pedicels 1.5 to 2 mm long. Female flowers: Calyx very obscurely lobed or truncate. Petals 4, oblong, obtuse, 2 mm long, free, reflexed in anthesis, pubescent externally, slightly thickened and cucullate at the apex, often with an apical gland but not corniculate. Ovary ovoid, pubescent, 1.5 mm long; stigma sessile, 4-lobed, the lobes stellate, narrowly oblong, 0.4 mm long.

LUZON, Province of La Union, Bauang, *Bur. Sci. 12964 Fénix*, December, 1910, along streams, flowers pink.

A species with quite the general appearance of *Tetrastigma loheri* Gagnep., differing in its pubescent ovaries and stellate stigmas.

TETRASTIGMA LOHERI Gagnep. in Not. Syst. 1 (1910) 265. 323.

Tetrastigma philippinense Merr. in Philip. Journ. Sci. 7 (1912) Bot. 86.

This species is merely enumerated to call attention to the reduction of *Tetrastigma philippinense* Merr. to *T. loheri* Gagnep. Fragments of *Loher 371*, the type of Gagnepain's species, received from Kew and from Dr. Gagnepain, convince me that the form I described as *Tetrastigma philippinense* under the impression that it was a species distinguishable from *T. loheri* Gagnep. in certain floral characters, is really identical with *Tetrastigma loheri*. It is accordingly here reduced.

VITIS Linnaeus

VITIS FLEXUOSA Thunb. in Trans. Linn. Soc. 2 (1793) 103; Planch. in DC. Monog. Phan. 5 (1887) 347; Gagnep. in Mém. Soc. Soc. Hist. Nat. Autun 24 (1911) reprint 28.

LUZON, Benguet Subprovince, Baguio, *Elmer 5880*, March, 1904, with perfect flowers and immature fruits, *Williams 1052*, June, 1904, with mature fruits, *For Bur. 5142 Curran*, August, 1906, with mature fruits, *Bur. Sci. 3371 Mearns*, May, 1907, with male flowers, *Bur. Sci. 13488 Ramos*, May, 1911, with male flowers.

Gagnepain, l. c., has referred *Elmer 5880* to the forma *malaiana* Planch., previously known only from Java, but if the various forms designated by Planchon are to be maintained, there is no reason why Blume's original name, *sylvestris* (sub *Vitis*), should not be retained. Gagnepain notes that the different forms designated by Planchon pass into each other without well-marked differences. The species extends from Japan and Korea to the Himalayan region southward to southern China, Indo-China, and Java.

Except for the introduced and occasionally cultivated European *Vitis vinifera* L., the above is the only true *Vitis* known from the Philippines.

LEEA Royen ex Linnaeus

LEEA PARVIFOLIOLA sp. nov.

Frutex circiter 3 m altus, inflorescentiis minute puberulis exceptis glaber; foliis decompositis, superioribus circiter 45 cm longis, foliolis numerosis, oblongo-ovatis ad oblongo-lanceolatis, acuminatis, 3 ad 6 cm longis; inflorescentiis amplis, laxis, 15 ad 20 cm in diametro, ramulis ultimis puberulis, ceteris glabris; floribus 5-merous, rubris.

A shrub about 3 m high, nearly glabrous, the younger portions of the inflorescence only puberulent. Leaves about 45 cm long, their petioles hardly dilated at the base, decompound, the lower pinnae about 20 cm in length. Leaflets numerous, membranaceous or chartaceous, slightly shining, the lower surfaces somewhat paler than the upper when dry, oblong-ovate to oblong-lanceolate, 3 to 6 cm long, 1 to 2 cm wide, slenderly acuminate, base acute, margins regularly and rather finely serrate; lateral nerves slender, about 10 on each side of the midrib in larger leaves, fewer in smaller ones; petiolules slender, short, terete or subterete. Inflorescence ample, 20 cm long, in full anthesis 15 to 20 cm wide, peduncled, di- and trichotomously branched, flower-bearing only on the ultimate branchlets, the older parts glabrous, the ultimate branchlets puberulent. Flowers 5-merous, reddish, very numerous, their pedicels puberulent, about 1.5 mm long. Calyx 3 mm in diameter, with 5 very broadly ovate, acute, 1 mm long lobes. Corolla 4 mm long, the free parts of the petals narrowly ovate, tapering gradually to the acute tip, 2 mm long. Tube obovoid, about 2.5 mm in diameter, the lobes oblong, about 1 mm long, prominently retuse. Anthers 1.5 mm long.

MINDANAO, District of Cotabato, Glan, *For. Bur. 14241 Tarrosa*, May 25, 1912, slightly above sea level.

A species well characterized by its numerous, comparatively small leaflets and the retuse lobes to the staminal tube. Its alliance seems to be with *Leea manillensis* Walp., from which, however, it is readily distinguished by the characters given above.

[Vol. XI, No. 1, including pages 1 to 48, was issued June 12, 1916; Vol. XI, No. 2, including pages 49 to 100, was issued June 24, 1916.]

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